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# There's more to it than meets the Eye!



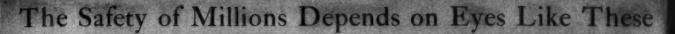
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THROUGH the cold dank dusk a watcher scans the gaps between the scattered clouds. His first glimpse of oncoming bombers sounds the alarm that sends thousands to the safety of their shelters and the defenders to their duties. Four thousand miles away, aboard a heavily laden freighter, the captain studies the silhouette of a ship on the horizon, to determine whether friend or foe. This is serious work for

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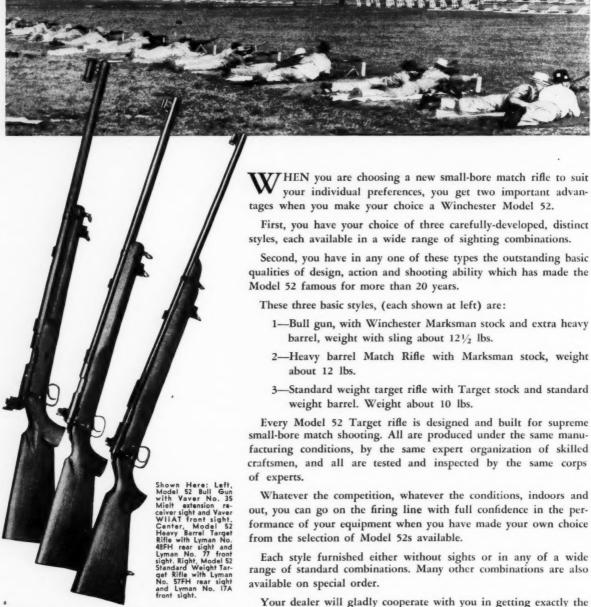
mobile engine; of spectrographs that analyze the chemical composition of crude oil—or of a die casting; of spectacle lenses that open up a world of learning to a school child whose mind might have been dulled by defective vision.

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# THE AMERICAN RIFLEMAN

OFFICIAL JOURNAL OF THE NATIONAL RIFLE ASSOCIATION OF AMERICA

Sgt. Joe McCann's article "Parachuting Rifleman," starting on page five in this month's issue, is the inspiration for the striking cover picture, taken at Highstown, New Jersey, by International News Photos, where some of our regular Army's sky-infantry were practicing blitzkrieg tactics of their own. Sgt. McCann has done this story for us, based on his own personal experience in paratroop training at Ft. Benning, Georgia, in the first of Uncle Sam's regular parachute outfits.

Our first contact with the Sergeant was through an article he submitted on shooters' nerve control, a new and interesting slant on vitamins, which we expect to publish soon. In it he mentions the fight against fatigue for the parachuting rifleman, which in less degree applies to every shooter. We asked him to expand the parachute rifleman's problems and got the splendid story we know you will enjoy.

FOR THE FUTURE: With accent these days on things military, our next issue will carry an article on the equipment of the German Army—one that will settle all of those questions in your mind about what the Germans are using in the field these days. Up-to-date, authoritative, it includes everything from shoulder arms and handguns to the newest in heavy artillery.

As a pre-hunting season starter, Colonel Townsend Whelen gives us in August an especially timely article. Now that defense needs mean that some of us won't be able to get that new rifle from the factory, we may have to fall back on the old "thutty-thutty" or similar adequate models; the Colonel emphasizes marksmanship with the older guns, based on some of his earlier hunting trips in British Columbia, which contain many a tip for the 1941 nimrod.

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# Which Flag?

Back in the days when men still remembered bow much had been the cost of American liberty the Fourth of July was a day of great celebration. No one played golf, there were no stadiums to seat thousands of umpire-baiting, but otherwise inactive, spectators at professional athletic tourneys. Some people were injured and a few were killed by the excesses of the celebrants' zeal, but the casualty list was only a tiny fraction of the traffic toll taken by the automobile in these days of "safe and sane" observance.

"Observance" is the proper term nowadays rather than "celebration." For some years "sanity" in matters pertaining to patriotism, has been the fetish of our leaders of public thought. Indeed, one may recall without too much groping in memory's caverns the period—after the last war—when intellectuals, from Senators to school teachers, warned the rising generation of Americans that "patriotism" was a dangerous drug used by the munitions trust to drive men into the insanity of

defending their independence.

"Flag waving," as it referred to waving the American flag, became unfashionable during this period. The debunkers were hard at work proving that George Washington, Patrick Henry and Abraham Lincoln were just ordinary mortals and that school-boys had no more reason to respect and revere them than other human beings—such as, for instance, Messrs. Marx, Lenin or Trotsky. Our literature turned from the inspirational exposition of the fine and great things accomplished by the builders of America to the "sane" objective and too often half-baked discussion of theoretical methods of changing things having their root in unchangeable human nature.

With the debunking of the old American heroes came a natural discrediting of the principles and ideals which had guided our founding fathers. Liberty became fouled with license, independence confused with disrespect. The idea that the citizen owed something to the Nation was subverted into the idea that the Nation owed everything to the citizen. The great school of "hand-it-over-to-the-hold-up-man-then-yell-for-the-police" began to take the place of the ancient Anglo-Saxon doctrine that a man's home is his castle.

But, peculiarly, while the leaders of the new thought in America decried "flag waving" as applied to the red, white and blue of the Stars and Stripes, they saw nothing amiss in the fluttering aloft of the red and white of the Hammer and Sickle! "May Day" might be properly "celebrated" though the Fourth of July should only be "observed." All who thought such a situation a bit out of place in America were

promptly labeled "old fogey", "reactionary", "tory".

Now, on the verge of a great and bitter war, we reap the harvest we ourselves have sown. The debunkers of "flag waving" (American style) have emerged in their true color—red. Their mentally immature and disillusioned playmates have become the loudest exponents of "old fashioned" patriotism and flag waving. They are hurt and befuddled because the generation which they raised to sneer at old-fashioned Americanism are now slow to understand why they should "celebrate" the Fourth of July instead of having a "sane observance" of the day.

Fortunately, the great mass of Americans of this generation, as of the older generations, are fundamentally sound and sensible. They are fundamentally patriotic

because patriotism is common sense.

On this Fourth of July, 1941, may we have a return to a good old-fashioned American flag-waving, "I'm-proud-to-be-an-American" celebration. It will serve to sweep out a lot of cob-webs from the minds of Americans—and it will perhaps encourage a physical house-cleaning of those termites who prefer to wave the Red Flag.

"Our Objective: Organize strife and combat groups; formulate plans for disarming police, loyal troops and loyal fighting workmen; destroy, when unable to capture all weapons which loyal proletariats might use." Communist doctrine from The Congressional Record.

—C. B. L.



Acme

So you think you got troubles, eh shooter? You strain a tendon in your thumb, and you start worrying about whether you'll be able to work your bolt perfectly. You get a bit of a bruise on your cheek, and you're afraid your reflex muscles will keep you from laying into the wood for proper sighting on your rapid fire. You discover a slight stiffness in your left arm, and you grumble for fear you won't be able to get that elbow down under.

You troop over to Joe's diggin's with the rest of the gang, and take on a little liquid nourishment—or maybe you just miss a few hours' worth of sleep on account of amnesia or whatever it is—but anyway, you wake up some fine morning and find that those horny old hands that are supposed to be as steady as taxes have developed a trace of the aspen quiver. And so you buzz around doing calisthenics and having the range medico take your blood pressure, and gobble up boxes of laxatives and whatnot.

You hit any one of those little difficulties which are so likely to beset the piano-tuned rifle artist, and the cuss words come out powerful easy. I know. I used to be

on a regimental team. Almost got to Camp Perry once. But that, as Kipling says, is another story.

And when you hit two or three jinxes at the same

time, or fairly close together, you have no difficulty whatever in apprehending the presence of old Brother Jonah himself, practically in the flesh, standing at your elbow with a grin of ghoulish glee (hot dam!).

But, boy, you don't know anything about troubles. And when I say anything, I mean nothing. If everything that could happen to you did happen all at once, it wouldn't be as bad as us parashooters have to face every day, part of the regular routine. That is, unless you were to go blind.

It's like this: I'll start at the beginning. Sometime last spring, when the War Department decided to have a whirl in the parachute soldier business, they collected a small group of picked men to receive training and become the cadre of the initial battalion to be organized. The men were picked on the basis of general soldierly qualities, good service records, and—most importantly—marksmanship. Practically everybody strolled in with some sort of shooting badge on his chest, and I was interested to note that they seemed to prefer a soldier who was a marksman

with both pistol and rifle to a man who could shoot rings around him with one but couldn't qualify with the other.

That policy was easy to understand

KNOCKED AROUND, BRUISED, EXHAUSTED AND UNDER ENEMY FIRE, THE RIFLEMAN DROPPED BY PARACHUTE MUST QUICKLY DEVELOP ACCURATE FIRE. ONLY LONG TRAINING CAN PROVIDE THE ANSWER

after I learned what kind of jobs they expected parachute soldiers to do in actual combat—from long-range sniping in the enemy's rear to slipping in the back door of an airport building and persuading the occupants to take it easy while you send out some false information on the radio.

Yes, sir. A p-shooter has to be able to fire a heavy machine gun with one hand and a pistol with the other. Maybe not the kind that gets you a letter from the President, but good enough to prove to the enemy that you're on serious business bent. You see, it takes a lot of airplanes, and a lot of equipment, and a lot of parachutes, to put a comparatively small force on the ground behind the enemy lines. So it is imperative that the men you do put down be 100 per cent effective. They can't expect any artillery or heavy weapons' support either, so they must rely entirely on their own organic fire power.

I haven't ever seen any real combat, not yet I haven't. But I've made many a maneuver, and I've seen a scat of War Department training films, including some taken in actual combat. I believe I have as close an idea of what a sure-enough war is as anybody could have second-hand. After you see enough of such training, you begin to get the idea behind a lot of things the Army does that didn't used to make sense.

And I can understand probably better than I can explain why that the individual rifleman is the basic combat unit in the parachutes. Team weapons are nice things to have around, when you have replacements for personnel to operate them, when there is an Ordnance Department station a mile or so back of your position, and when you can keep truckloads of ammunition grinding up hour after hour to keep your belts filled.

But you can't swing a machine gun around in your arms. You can't climb a tree with it. You can't slog through the mud all day with one on your shoulder—not even with your proper share of it when nobody has been knocked out of your squad. Parachute missions take a good old backwoods rifle and pistol shooter, and they

sure had that in mind when they drew up the organization.

Of course, we have that good old "base of fire" that the cavalry thought up and the infantry tries to take credit for. In fact, we have mortars and light machine guns organically assigned right down to and including the platoon. We'd need that base in a full-dress battle. But I'm thinking that us parashouters won't be doing much scrapping under the five-paragraph field order, neatly centered on the mimeographed sheet.

We can't use anybody who throws his ammunition around like money on payday, either. Sure, the battalion supply offices have plenty of plans for locating a detail on the ground behind the enemy lines so they can drop parachutes loaded with extra ammunition, chow, and any other needed supplies. But I have a notion that, come the real thing, a string of jumpers tossed out on the enemy won't be hearing from home until the war's over, or unless an armored division punches through to rescue 'em. The ammunition we tote off with us from the landing point may have to last three years unless we steal some from the enemy. (On the other hand, I think I'd rather be snitching lettuce and fresh eggs from a slant-eyed farmer.)

Anyway, they took this collection of variegated shooting talent and proceeded to teach us all how to make parachute jumps. That was fun. For a couple of months we forgot all about marksmanship training and gas-mask exercises and close order drill and spent our entire time perfecting the technique of riding a silk parasol into the ground without breaking any bones.

Did you ever make a parachute jump? I realized right off that it was going to be a major problem to mix good shooting with that kind of profession. And after we finished our training jumps and started in on tactical work, with bundles of rifles floating down with us and a variety of ground problems to complete after landing, I realized that I hadn't yet realized what a problem it would be. It's just as if somebody sat down and deliberately figured out the things he could do to a man that would go furthest toward ruining his shooting.

"You snake your rifle out of the battings, and rabbit over to the nearest cover . . . another 800 yards or so."





parachutes so they'll be easy to locate and identify on the ground. The nerve-strain of waiting for the jump is nothing compared to what happens to you next.

You drop all right, and the fall makes your stomach turn into a specially heavy cannon ball. At least sixty or seventy feet, even if Betsy works perfectly. Maybe two or three times that far, if your head is down and your back is to the ground when she rips. Once in a great while you get a painless opening, but most of the time it snatches the living daylights out of you. When she opens, you see, you are traveling at least sixty miles an hour, and possibly as much as 125. The opening brings you down to fifteen miles an hour, and I mean right now! No easy halt like hydraulic brakes. Just a dead stop like running out to the end of a rope.

It's right surprising how that sudden stop can jumble you all up inside. Your stomach falls down around your

Wide-World

ABOVE: "Gee! Guys have been killed doing this kind of stuff."

RIGHT: "... the individual rifleman is the basic combat unit in the parachutes."



First off, it's an extremely bothersome thought, at best, that plagues a man's mind as he sits in a transport plane and roars through the air, knowing that in a few minutes he'll be bailing out. We pack our own 'chutes, you know, and as you sit there in your harness it's mighty easy to start wondering if you tied your bridle with sixpound cord or 25-pound braided silk. Then you remember that you stumbled against the table as you were lifting the canopy into the tray, and it just might have messed up the channel. Didn't think anything about it at the time, but now you wonder—

At any rate, it's very trying on the nerves, even if you are sure everything is O. K. inside the pack. You stare out the jumping door at the mappish-looking ground below, and think that in a few moments you'll have to charge through that door and drop like a plummet until old Betsy blossoms out. Gee! Guys have been killed doing this kind of stuff. Why in Sam Hill did I leave the good old mud-marchers and volunteer for an outfit like this? It makes a fellow's throat get awful dry.

But anyway, out you go, with eleven others plus a couple of equipment bundles—these last in red or yellow knees. The harness chest guard smacks you like a heavyweight boxer had given you a straight one over the heart. Your head snaps back and your neck bones crackle, and about half the time you find that your eyes have somehow got crossed.

Well, in a few seconds you've recovered enough to take charge of your airship, though sometimes the crosseyes will last for a while even after you hit the ground. You reach up and grab your connector links in both hands, and start the various pullings and pushings that control oscillation, direction, and speed of descent. For a couple of minutes your arms work up and down violently, and every downward pull, since it raises the body higher into the canopy, requires as much force as is needed to chin the bar. You can be sure that when you reach the ground both arms will be as dead as though you had lugged a couple of heavy suitcases for ten blocks.

Then, blam! You hit the ground, and with a force that has been calculated to approximate that of jumping off the top of an automobile traveling fifteen miles an hour. Sometimes you keep your feet, after digging two long trenches with your heels, but usually you topple over

and roll around rather ruggedly, bouncing your head off a tree stump. This, of course, helps a great deal to get the nerves back under control and restore the eyesight to normal. To get off with only a sprained wrist or finger is considered lucky.

But you're still a long way from getting started on your combat mission, whatever it might be. A soldier's no good without a gun. Now, where is that equipment parachute? There she billows, some 800 yards away. Gotta get there quick and get that rifle. One long sprint will do it, unless some enemy sniper spots you and starts churning up the sand around your feet. In that case, it's a short run, hit the ground and roll to the right or left, a short run, hit the ground and roll, a short run, hit the ground. And all the time you are getting into better and better shape to fire expertly.

You snake your rifle out of the felt battings, and rabbit over to the nearest cover—which may be another 800 yards or so. By this time the lieutenant who jumped just ahead of you has selected his assembly point. He blows his whistle and swings his arms in the air, and everybody starts on another mad dash.

When your platoon has finally assembled, and become once again an organized, armed, effective ground force, the following things have happened, at least:

- 1. You have been subjected to extreme nervous excitement.
- 2. You have been whipsnapped hard enough to break ordinary shoelaces out of your boots.
  - 3. You have exhausted the muscles of both arms.
- 4. You have smacked your anatomy against the unyielding ground.
- You have run until your lungs feel like a pair of acetylene torches, and every breath comes in a deep gasp.

In addition, the following things may have happened:

- 1. Your eyes may be crossed.
- 2. Your neck may have a crick in it.
- 3. A wrist, a finger, or an ankle may be sprained (or even broken, for that matter).
  - 4. You may be wounded.
  - 5. You may be woozy from a crack on the head.



Now, how well do you think you could shoot in such a condition? Remember there's no time to hole up in the woods for a breathing spell, to rub sore muscles and allow the eyes to straighten out again. All parachutists' missions are planned in detail down to the minute. It doesn't take the enemy long to spot the silk you have left lying on the ground, and you must do what you are there for before he has time to take any counter-action. It's easy to understand the prime importance of surprise in any such operations; you've got to start firing while the enemy's mouth is still open, because there are a lot more of him than there are of you.

The squad leader encounters a target and gives his fire order. That means he wants fire on that target, and he wants it accurate; and he wants it right now. No telling when they'll be able to drop us extra ammunition—might not even be able to find us from the air—so what we have might have to last indefinitely. Can't go scattering it all over the terrain.

With your shooting eye wandering over the landscape out of control, you try to draw a bead. You seat the forearm in your left palm and suddenly realize that most of the skin got ground off in your landing, and the gravel that is nestling under the skin goads you with the weight of the weapon. That hurt finger on your right hand begins to swell, and you realize it is so touchy that you won't be able to squeeze without flinching. Your chest is heaving with short deep breaths like Valentino, and you can't hold it long enough to line up your sights.

You whistle and say gosh, that's pretty bad but what can you do about it, and I answer right quick that there isn't but one answer. Hours, and days, and weeks, and even months on the range. Aiming, and holding, and squeezing. Doing it until you can do it in your sleep, and never have to check yourself over to see if you are doing something you shouldn't.

I can think of a pretty good analogy (I can get in some other big words too, if I write long enough). I went to business school when I was but a lad, and after four months I could sit before a typewriter of the exact proper height, in a chair calibrated to my shoulders, with the light at the correct angle, and mill out fifty words a minute if I concentrated hard.

Guess I've rattled off a couple of million words since then. Now I throw one leg over the desk and balance my chair on the back legs. The keyboard can be any height that I can reach. The light doesn't matter, because I don't look at it, anyway. And I can shove out eighty words a minute, with no mental effort whatever. I just think of what I want to say, and it gets wrote.

That's just the kind of second-nature shooting a parachuter has got to have. And the only way you can get that is by squeezing off a wagon-load of ammunition over a period of years. Get to where you just look at what you want shot, and it gets hit.

Maybe somebody who has more face with the old man than I have will suggest to him what I think would make a fine motto, or nom de guerre, or whatever it is, for a parachute battalion:

"Shoot less and shoot straighter."

". . . when you reach the ground both arms will be as dead as though you had lugged a couple of suitcases."

## CAMP PERRY AGAIN!

### National Pistol and Small Bore Returns to Old Home, August 31-September 7

WELCOME NEWS, as we go to press, is the fairly certain fact that Camp Perry is again to be available for the National Matches. Not the National Matches as we have seen them of late years, for the hundreds of .30-caliber shooters swarming over the ranges will, regretfully, be left out, but at least the small bore riflemen and the pistol artists will be there, en masse. Aside from the booming of those long lines of big bore, the matches will take on an old-home-week appearance, for the small bore and pistol ranges will be moved to those well-sodded 200- and 300-yard .30-caliber ranges in the very center of camp activity.

Now all this, it should be explained, is a reversal of the tentative information passed out in the June RIFLEMAN regarding the Nationals. But through the earnest workings of our Director of Civilian Marksmanship, Col. F. C. Endicott, there has shaped up only within the last few days not only a resolve but working plans as well to carry on the traditions of Camp Perry, even in these times of emergency.

#### TOP TWO IN ALL CLASSES GET TRIP

Within the appropriation now before Congress, already passed by the House, funds will be available to materially increase the number of shooters taken to the matches from each Regional Tournament. The TWO high scoring competitors from each class (Master, Expert, Sharpshooter, Marksman) in the Regional Aggregate will be

awarded a trip. These trips are intended to be scattered about as much as possible, therefore no person who has previously won a trip as a prize in the Regional Aggregate shall be eligible to win any of these trips this year in the same or lower class than that in which he competed the year of winning the trip.

The dates August 31-September 7 inclusive are definitely determined although the matter of devoting the first three of these days to a modified Small Arms Firing School for rifle and pistol is still under question. The National Individual Pistol match will be included but not the National Trophy team event. Programs will be available at N. R. A. Headquarters soon after the first of July.

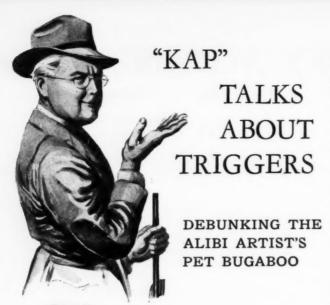
Housing accommodations are bound to be limited within the camp itself. Several of the smaller mess halls will undoubtedly be opened under a concessionaire for one or more meals a day, depending on the circumstances of competitor convenience.

The sites mentioned last month, the L. A. Young range in Detroit for pistol and the Ohio Association's Mt. Gilead range for rifle, would undoubtedly have provided the necessary facilities, but only Camp Perry itself can furnish the atmosphere as well as accommodations for the Nationals as they have come to be known. Therefore the efforts of the D. C. M. to again establish within the budget the means for operating personnel, for range construction and other incidental expenses, will receive the thanks of shooters all over the country.

.45 Caliber Aggregate

### NATIONAL MATCH SCHEDULE

	MATIONAL MATCH SCHE	DULL		
	RIFLE	PISTOL		
Wednesday, September 3	50 Yd. Allcomers Any Sights 50 Yd. Allcomers Metallic Sights 100 Yd. Allcomers Metallic Sights Lyman Doubles (100 Yd. Metallic Sights)	.45 Caliber Slow Fire Match .45 Caliber Timed Fire Match .45 Caliber Rapid Fire Match .45 Caliber Team Match		
Thursday, September 4	U. S. Trophy (Dewar Course, Metallic Sights) 100 Yd. Allcomers Any Sights Remington Trophy (50 Meters, Any Sights) Life Members Match (Dewar Course, Metallic Sights)	Center Fire Camp Perry Course McGinley Trophy (Police Individual) Center Fire Civilian Individual Police Restricted Individual Colt Trophy Police Team Civilian & Military Team Orton Trophy (.45 Cal. National Match)		
Friday, September 5	Western Trophy (Dewar Course, Any Sights) Austin Trophy (50 Meters, Metallic Sights) Peters Trophy (200 Yds., Metallic Sights) Hercules Trophy (Doubles, 200 Yds., Any Sights)	Center Fire Slow Fire Center Fire Timed Fire Center Fire Rapid Fire .22 Caliber Slow Fire .22 Caliber Timed Fire .22 Caliber Rapid Fire		
Saturday, September 6	Winchester Trophy (200 Yds., Any Sights) Randle Doubles (50 Meters, Metallic Sights) American Dewar Pope Trophy (50 Meters, Standing, Any Sights) Standing Match (50 Yds., Any Sights) Kneeling Match (50 Yds., Any Sights)	Center Fire Short Course Clarke Trophy (Center Fire National Match) .22 Caliber Short Course .22 Caliber Championship		
Sunday, September 7	American R. W. S. (50 Meters, Metallic Sights) Marksman Match (Dewar Course, Metallic Sights) Sharpshooter Match (Dewar Course, Metallic Sights) "400 Club" (Dewar Course, Metallic Sights) Caswell Trophy Team (Interstate Team, Dewar Course)	N.R.A22 Caliber Team N.R.A. Center Fire Team National Individual Pistol Match		
Aggregates	Critchfield Trophy Any Sight Aggregate Metallic Sight Aggregate	All-Around Aggregate ,22 Caliber Aggregate Center Fire Aggregate N. R. A. Aggregate		



OU FLATTER me by your request for the dope on triggers, their function from a mechanical standpoint, and their function from the shooter's standpoint. But you certainly picked a funny number for it when, for nigh on to forty years I have been rather sarcastic among the trigger-alibi boys around the country, holding forth that trigger manipulation is much more psychological in its effect than as an actual drawback in preventing good performance-in other words, where the shooter's mind is centered more with the results than with any mechanical defect in trigger construction. If a man has his mind centered on a real or imaginary creep or rough spot in his trigger let-off, he loses sight of the thing he is really trying to do, that is, placing his bullet where he wants it. If his mind is trained to concentrate on centering his target he gets a sort of mental vision of doing just that, and, more often than not, does it, totally unaware of any trigger manipulation, rough or smooth, soft or draggy. If, on the other hand, he changes his mind at the crucial moment and begins thinking in trigger terms, blooie goes the shot, the score is spoiled and old man Alibi comes up with trigger, trigger, trigger.

Since nine years of age (quite a spell back), I have shot a great many different trigger mechanisms on all sorts of rifles, from set triggers that a breath would release, to the old .45-70 Springfield, where the trigger on the firing line was tested by lifting the weight of the cocked rifle. As the Springfield weighed something over nine pounds, a bit of creep now and then did not make a great deal of difference. The boys used to get some very good results out of the .45-70, at that. I had occasion at one time to shoot one of the Swiss double-set-trigger rifles and I think it was about the toughest assignment I ran across in my profession. I was leary of that trigger and it was next to impossible to keep my mind on the work in hand. I was afraid to touch the trigger and afraid not to and just hadn't the time to get my mind on where the bullet was going into the target. Psychology aided and abetted in going wrong by an untrained sense of delicate touch. No, I'm afraid it would be a poor effort for me to write anything technical about triggers. All my shooting life has been spent in training myself to forget there was such a thing as a trigger-good or bad.

To the manufacturer, the bolt type of rifle has always been something of a half-hearted quandary, the other half passed on to the customer as to a really durable and efficient trigger equipment. With one exception I have seen to date very few really good trigger actions on any boltaction rifle, either by commercial or private makers. By that I mean actions that are not subject to change (always for the worse) after a few hundred rounds of use, or from a change in temperature, cold or hot. In my opinion this is largely due to the universal use of too light and flimsy trigger springs. Especially is this true where the trigger spring is compressed to allow the removal of the bolt from the receiver. After a bit of use or a change of temperature the shooter must have a screwdriver within reach or the fussy range officer has his rifle barred for noncompliance of rules. Eventually he finds the spring has quit functioning.

The exception mentioned above: For the past four years I have been experimenting with a couple of triggers on my 37 Remingtons, made up by my old friend George Garrison. George rather upset traditions of the past four hundred years of trigger manufacture by reversing the trigger leverage in that he has about two and one-half times the distance from the trigger spring to the cocking sear, over the distance from the pin to the point where the finger engaged the trigger. Thus the release movement is exaggerated over the rearward retraction of the pull. In addition he has a straight compression on the trigger spring, and this spring is of the same size as the firing spring, though not so long. A screw compression gives the necessary poundage to the let-off. The actual rearward action of the trigger is so slight that the brain refuses to register any movement whatsoever; neither will a close visual inspection.

This description is not intended as an advertisement, but I just want to say further that I have two 37's equipped with this trigger, and both set to three pounds plus have not required a touch-up with a screwdriver in more than three years, hot or cold; and they have been shot and snapped thousands and thousands of times.

The most interesting thing my experiments have shown me in connection with the above set-up is that the let-off is just a jump ahead of the shooter. For that reason the follow-through is as near perfect as can be obtained. One of the first things I noticed was that I could follow the last two thirds flight of the bullet into the hundred-yard target at least ninety per cent of the time when shooting scope and in average light. It shows that at least a trigger can be concocted that is faster than the inclination to wink as it is let off.

On the other hand, I have just received a model 513-T, the light Remington match rifle. Standing in the garage prior to going out on the range, I find on slowly squeezing and watching the trigger action that it pulls near six pounds and has three distinct stops. On the range, trying for groups, I have yet to feel a creep or any sense of poundage. Probably the result of long training, but it does not leave me much chance to yell "BUM TRIGGER" when I heave one out for a wide 9 east or west on the map.

Am up in a Michigan camp these days. The sign on the entrance says "KWITWIRKIN." Am lazy as Hell and glad of it. Perhaps that is why I don't know a thing about trigger mechanisms.

Anyway, thanks for your courtesy.

Sincerely, "KAP" RICHARD.

# ALIGNING SCOPE BLOCKS

By George N. VITT

Some TIME AGO I read some instructions for placing scope blocks on a rifle, and I am moved to offer the following remarks in a sincere desire to be helpful, and perhaps save more than one fellow a trip to the gunsmith. And this is not meant as a criticism of the zealous soul who wrote those instructions, either!

#### LOCATING THE BLOCKS ON THE BARREL

This can best be accomplished by setting up the barrel and receiver assembly on a surface plate or a piece of leveled plate glass ( $\frac{3}{8}$ " thick is enough). After testing the plate or glass for level, block up the barrel so the axis of the bore "looks up" by the proper amount to compensate for the line of aim, the thickness of the scope blocks, and the taper of the barrel.

When the barrel rests in its pair of cradles, take an adjustable machinist's square (12" combination square), set the 90° rule-holder on the blade, and, using it as a height gauge, slide the rule-holder, with a second blade locked in it, down until it touches some "level" spot on the barrel-receiver assembly—for example, the receiver side rails on a Model 52 Winchester. Combination squares (your own or borrowed) are usually quite accurate, and in this manner you can be assured that the barrel, lengthwise and crosswise, is in the proper position. The auxiliary rule of course serves as a parallel to the surface plate.

With the barrel trued up in position, clamp it fairly tight in its supports, and you are set to work on it. Set the rear scope block wherever it belongs, presumably on the barrel-top near the receiver in the case of the Model 52. Set a parallel-jaw, or even an ordinary C-clamp, on the block very lightly, so that it can be easily moved, but ready to tighten up at once. Using the combination square, level-up the scope block crosswise by lowering the auxiliary blade upon it, holding the base of the square tight against the surface plate (or glass). In this manner, with the scope block loosely held, it will come to the correct position almost by itself. Without moving the square away, gently but firmly tighten the clamp so that the scope block is strongly held against the barrel.

Now we come to locating the screw holes. Don't use a scriber and guess at the center of the hole in the scope block. A scriber is intended only for drawing lines, and very light prick-marking on soft metals. Instead, select a piece of drill rod that will fit the hole in the scope block with an easy push fit. Cut off about a two-inch length of this rod. Chuck this piece rather deeply in a three-jaw chuck in a lathe, drill press, or similar contrivance, and with an ordinary No. 2-cut 8-inch mill file, shape the end of the rod so that it will come to a true 60° point-same as a center punch or a lathe center. Be sure the tip is centered, and as sharp and true as can be made. (The best way, of course, is to cut it with the regular lathe tool or tool-post grinder.) Then heat the piece over the kitchen gas stove to medium-red, and plunge it into cold water, stirring it around. This will make your punch too hard, so it is necessary to draw the temper. The easy way to do this is as follows: Polish

the side of the rod right up to the shoulder of the 60° point with emery paper (No. 00), heat the rod over an ordinary candle, holding it in a pair of pliers by the flat end (play the rod back and forth over the flame without letting it touch the flame and get black with soot), watch the colors start traveling toward the tip, and when the tip begins to turn from dark straw color to dark orange, plunge it quickly into cold water, which should be kept handy in a pot next to the candle. The flame should be kept under the rear half of the rod only.

This will give you a punch with a hard tip—a tip harder and better than you can buy in any store, though it will not stand "licking" with a hammer. And it will never get dulled in the infrequent use to which it will be put, and will mark even hard metals very well.

With the punch made and carefully fitted to the size of the holes in the scope blocks, you now can set it into the nearest hole in the block clamped to the barrel. Make sure that its sharp tip touches the surface of the barrel, then give it a light tap with a 2 or 3-ounce hammer; and if everything is nice and rigid, give it another, heavier tap. This will give you a good enough mark in the usually soft barrel steel, exactly centered in the hole in the block, without any guessing. Before doing anything else, proceed in the same manner with the second hole in the block. Now you have the centers of a pair of holes that are bound to put the scope block in the correct position without guessing, provided you worked slowly and carefully.

Loosen the clamp and remove the block, setting it aside. Place the second scope block on the barrel at the correct distance from the rear block and repeat the procedure.

In setting the scope blocks so that their upper faces are level crosswise, you have, of course, to set the checking blade of the square crosswise of the barrel.

#### DRILLING AND TAPPING THE BARREL

For determining the original position of the blocks when still held loosely on the barrel, you can use a large-base height gauge with a right-angle blade, or you can make up a special jig—if you think you might do similar jobs for a few good friends who are not mechanically inclined. There are several other methods that can be used, of course, but the above one will suffice.

For the information of those who are really interested in good work, I give here the Starret numbers for the square set mentioned earlier. It is: Combination square set No. 434 with No. 7 graduation on a 12" rule. The right-angle attachment for the combination square blade, when used as a height gauge (or for similar use), is No. 289B. A suitable steel rule to clamp in the right-angle attachment is the Hook Rule No. 418 with adjustable hook and "quick-reading graduations," 6" length, graduations No. 4 or 7. The same can be secured from Brown & Sharpe. Those who are satisfied with uncertain quality, soft edges, and mediocre finish, at a lower price, can buy the same quite cheaply from one of the two large mail-order houses.

Now we come to drilling the holes. If you have a drill press, use it. If you haven't, go to a friend who has a good-sized one.



Scope blocks are easily aligned if a surface plate or glass plate and a couple of machinist's squares are used

If you made your original set-up on a piece of plate glass (say 8" to 10" wide and some 24" to 30" long), you can place the plate on the drill table. Next place the barrel back on the glass plate with its clamped cradles or supports; move the whole so that the punch marks are in position under the drill chuck, and fix everything in place by means of anything as ordinary as plain string or twine

Start the hole with a small center drill, very carefully. Never start it with the wobbly 1/16" ordinary drill. After you have made a start, drill the hole to the final correct dimension (small diameter of the screw tap to be used) with the drill supplied with the scope blocks, or any other well-sharpened drill of the same size. Use plenty of cutting oil, and run the drill press about 500 r.p.m. if it is a power-driven machine—the slower you work the better. Where the barrel is heavy, you can afford to run the holes down 1/16" more than the minimum depth required.

Now we come to cutting the threads in the holes. Don't, if you can help it, use a hand wrench for tapping, because the man is not yet born who can run a true thread by hand in a shallow hole; and TRUE it must be in a job like this. Rather, clamp the tap in the drill chuck, without disturbing your drilling set-up. Lower the tap to the last hole you drilled, and, pressing down on it lightly, turn the drill spindle by hand, back and forth, advancing it little by little. The thread is short, and you might as well do a good job of it. We assume, of course, that you will use a "bottoming tap"-the kind in which the cutting teeth extend, full-height, right to the tip. Use plenty of thin oil, of any kind, when cutting the threads (sulphurized cutting oil or lard oil are best). During the threading operation, make sure at all times that you are not crowding the chips at the bottom of the hole-clean them out frequently.

Repeat the above operation for the rest of the holes. Proceeding in this manner, you will have as a result holes all strictly parallel and true, with true, even screw threads. All this with a minimum guesswork after the first set-up is completed.

In finally cleaning the chips out of the holes, DON'T imitate a dentist and wrap cotton on a drill to pick the chips out with. At this stage of the game you can un-

clamp the barrel from its supports or cradles (or V-blocks as the case may be), take it to the kitchen sink, and turn a strong stream of hot water on each hole. This will wash out every chip in a hurry. You can also squirt kerosene or turpentine in the holes, holding the barrel upside down. When finished, blow the holes out by mouth (you will be surprised what a good blast you can give).

Before setting the blocks on the barrel to be screwed down, place a little high-melting-point Cosmos grease or a 50-50 mixture of anhydrous lanolin and pure white petrolatum in the holes. Also a thin smear of it under the scope blocks. Screw the blocks down, and test them for true alignment on the cradles and surface plate—"just in case." In ninety-nine cases out of a hundred, this simple method gives a precise setting of the blocks.

Now we come to a consideration of blocks that are already on, and are "cock-eyed." Shimming is the quickest and easiest way to correct this condition. In any case, set the barrel up as before, and, using the square and its 90° auxiliary blade, check the amount of error, lengthwise and crosswise. Don't use brass or copper for shims—or paper, either. Buy a nickel's worth of Starret or Brown & Sharpe steel shim stock of the proper thickness determined by your checking. Fit this carefully under the block, and tighten the screws.

#### GRINDING AND FILING

In grinding the scope blocks, I want to warn all home gun-mechanics NOT to use such tools as the Handee grinder for delicate operations on precision surfaces such as the scope blocks. This is because a vibrating, noisy, hot hand grinder in the hands of a man not working with such a tool for a long time JUST CANNOT produce a true and uniform cut, no matter how hard a man tries. The resulting surface will be wavy, full of small depressions, etc.

Grinding of the blocks is of course one of the correct ways of truing up their faces. Such grinding can be done on a bench stone by careful manipulation. By this I mean that the block must be clamped between two pieces of maple or similar wood so that approximately the correct angle is ground off the block face, the whole being moved back and forth on the stone, using plenty of thin machine oil. In this manner a very precise job can be done, with patience and slow work.

When selecting the bench stone (whetstone), DON'T ever use the so-called Carborundum stones. They are made of particles of silicon carbide held rather weakly together with a certain bond, the combination being intended for rough use. Carborundum stones very quickly lose their true surface when used for grinding hard steel pieces; the stone will not hold oil on its surface, and it will cut dry, and glaze and scratch your fine scope block, and a poor job will result.

If you are bent on doing your own work, buy a Norton stone made of a material called Alundum (Aloxite is the Carborundum Company's name for the same thing). This material is nothing more than ordinary aluminum oxide, the particles being held together with a much stronger bond; and the stone does not drink up oil when grinding. Medium and coarse stones 8 inches long and 2 inches wide are the best for such work. Don't buy the so-called two-sided stone with fine and coarse grits combined.

The next better way is to grind the blocks on a true side face of a wheel. Here again—go easy and slowly.

The selection of the wheel is the most important thing, other things being equal. Any home-grown gunsmith should have at least one first-class grinding wheel, power or hand, that runs true and without vibration.

The average hardware store man knows little or nothing about wheels, and sells you usually just the kind of wheels that are the poorest for good gunsmithing work. I live in the second largest city in the States and have to order my wheels from the factory, just as large manufacturing concerns do.

Right here I shall share a shop "secret" with my fellow shooters: The only really good wheels for grinding the steels that are usually used in gun work, are made of snow-white Aluminum Oxide. This is trade-marked by the Norton Company as "Alundum 38," and by the Carborundum Company as "White Aloxite." The grit or grain size should be 60 for all-around use. And now I will name three other important characteristics of grinding wheels: bond, which holds the abrasive grains together; bardness, which indicates the relative ease with which the individual grains break out of the wheel after a certain degree of wear, and structure, which has to do with the spacing of each grain from its neighbors.

The best bond today is marked BE by the Norton people. The best hardness for shop and tool-room grinding is M or N. The best all-around structure is 5 (medium). Thus, in buying your wheel you can briefly specify 3860—M5BE, which indicates the exact quality.

The nicest size and shape of the wheel in question is: 6-inch diameter; 2-inch face, with one side recessed 1 inch (diameter of the recess being 2.5 inches). Such a wheel has one true flat face on the side for precision grinding, and a good wide peripheral face for chisels and rougher work. The hole for the shaft can be  $\frac{1}{2}$ ", or 1" lined with lead. This wheel will cut surprisingly quickly, and it will heat the piece comparatively slightly, being a cool-running wheel. I have taken so much space to describe it because grinding is one of the most important operations in finishing metal to final size, and I happen to have had a lot of theoretical and practical experience in it, while very few shooters get the chance to even know about various grinding wheels and stones.

Now we come to grinding our scope blocks on this wheel. REMEMBER that any scope block of decent manufacture is made of either some medium-carbon steel, or good tool steel, hardened and tempered. This is because the accuracy of the scope depends upon their being NO wear on the block faces. Therefore PRESERVE the hardness or the temper of your blocks as you would the apple of your eye. Don't let the blocks get hotter when grinding than you can hold in your fingers. When the block heats up, immediately drop it into a can of cold water placed right next to the wheel. Then pick it out, and proceed with your grinding. Grind on the flat side of your wheel. Use the lightest possible pressure, and watch carefully the angle of contact, frequently looking at the face being ground, and checking it by measurement. The slower you go the better the result. The finished job will be smooth and satisfying. The wheel should be run from 2000 to 3500 r.p.m. for the 6-inch size, and the grinding can be done free-hand, if you are careful. Spotting with Prussian Blue should be done as you go, against a surface plate or a piece of ground plate glass.

In NO CASE ever commit the sacrilege of HEATING any part of the rifle, including the scope blocks, to dull red or any other red to destroy the hardness so that you can file it. In the first place, this will usually distort the block. Secondly, the very purpose of the block is to be hard and prevent wear, thus preserving the accuracy of the whole assembly. You might as well throw such heated blocks away, and start over. Last but not least, such a job should not be filed for a final or finishing operation—it is almost impossible to file precisely (although it can be done by experts with fine-cut Swiss files) and produce flat and straight surfaces. And if you leave the block alone and don't heat it, then you can't file it anyway because of its hardness. If any filing is to be done on fine small parts, always remember that you can do a better job by clamping the file flat on the bench, and rubbing the piece on it slowly. Use a file card or a wire brush frequently to clean the chips out of the file; or rub chalk on the file. This will prevent scratching the work.

The BEST way to grind cock-eyed blocks on a barrel is to set the assembly up as before, and run it through a surface grinder. You can possibly obtain the use of one in some good-sized neighboring machine shop, or a factory tool room. However, this is perhaps beyond the scope of the average shooter, and had best be left alone.

Because many a shooter wants to hone his trigger, and grind this and grind that, I want to point out the great value of knowing something about modern abrasives. Anyone can obtain very excellent manuals on the subject for the asking. Just drop a line to the Norton Company or the Carborundum Company, both at Niagara Falls, and ask them for their booklets on Grinding Wheel Information and Selection, Tool Room Grinding, Oilstones and Abrasive Specialties, Coated Abrasives, etc. The average shooter will be amazed at his ignorance upon studying this fine trade literature. He will also get kind of sore at his neighborhood hardware dealer for not selling him the right stuff for his hobby. The Norton Company makes a better variety of wheels and oil stones.

While the above is a lengthy story, it concerns an important piece of work in the shooting game, which should be done right by the shooter, or taken to a good gunsmith. I know how hard it is for the average fellow who has little time to pick up certain trade information and tips. Moreover, not even all gunsmiths really know very much, and some of those that do keep it to themselves.

In locating screw holes for the block, use a hammer and a full diameter punch with a properly centered point



# The

# BROWNING AUTOMATIC RIFLE

By Major E. H. Harrison, Ord., U. S. A.

THE MACHINE GUN, whose seed was planted long ago, The MACHINE GUN, Whose seed was planted and to full flower in the first World War. It was the heavy machine gun, a two- or three-man affair on a bulky tripod, that mowed down its hundreds of thousands and by its power in the defense changed the face of war.

But even as it did so, there was forming another kind of automatic gun. The heavy machine gun is strong in prepared defense, and can in addition often support attacking troops by overhead fire and otherwise. But both reason and experience show that after that time, and at all times for small mobile units, there must be highly portable automatic weapons in the hands of groups as small as squads. So came into being the automatic rifle and the light machine gun.

They are not new, even though somewhat younger than the heavy gun. Our M-1909 Automatic Rifle (the Benet-Mercier), in many ways ahead of its time, was one of the crop that appeared after the Russo-Japanese War, the first modern war. By 1916 all the principal European nations had models of automatic rifles. The British used the famous Lewis, the invention of Colonel I. N. Lewis of our Army. The French had the Chauchat, or "Shosho" to the American soldiers who were armed with it in their early months in France. To the heartfelt relief of these troops, most of them were able in 1918 to turn in their Chauchats for Browning Automatic Rifles M-1918. Ever since then the Browning has been an integral part of our infantry.

For half a dozen years after its adoption the B. A. R. was constantly in use in marksmanship and other training. Then as memory of the war slowly faded and ammunition allowances faded too, it became less used. This was also due not a little to the

The B. A. R. is still one of the finest of Automatic Arms. By no means obsolete, it only now is coming into its own.

> fact that the gun is carried slung, and therefore somewhat spoils the appearance of for-

In recent years, new wars involving firstclass powers have caused a notable revival of its use. A new model, the M-1918A2, was brought out and is now standard. The Colt "Monitor," used by law-enforcement agencies as a more powerful substitute for the sub-machine gun, is a shortened B. A. R. In Europe, the Fabrique Nationale d'Armes de Guerre of Belgium manufactured in quantity practically the same gun, and their product has been used in various wars with success.

The old Browning M-1918 (Figure 1) weighs 151/2 pounds empty and 161/2 pounds loaded. It is much like an ordinary rifle in appearance, though of course more thickset. For a weapon of this kind it has quite clean lines. About the only features that appear unusual to the layman are the gas cylinder tube and the

The gas cylinder tube is a structural member only, carrying the fore-end and (screwed in the front end)

the short gas cylinder.

The magazine is of 20-round capacity, which accounts for its projecting below the receiver. It is a simple sheet steel affair, and in war is intended to be as expendable as the fired cartridge cases. Due to this construction, however, some magazines in every supply are sources of feed trouble and must be weeded out.

We see also a barrel somewhat heavier than that of a rifle, a receiver well formed and in full scale with the rest of the gun (since the mechanism parts are large and strong) and a stock of conventional shape. The thickness of the small of the stock is partly due to the fact that it contains the buffer, which cushions the impact of the bolt at the rear end of its stroke.

With the bolt forward and a magazine in place the gun is almost entirely closed, with little chance for sand or mud to enter.

Figure 2 shows all the moving parts. Consider first Figure 2 a, which shows the mechanism in the closed position just after firing. Nothing happens until the bullet passes the gas-port six inches from the muzzle and admits gas to the cylinder. The gas cylinder is only an inch long and the piston fits in it rather loosely, but the impact of the gas on the piston gives the moving parts the necessary velocity to carry through the working cycle.

The slide is pinned to the link, and that in turn to the bolt lock. It can be seen that the relative positions of these pinned connections are such that the first movement of the slide only moves the lower end of the link to the rear without much effect on the upper end. During this movement the slide is getting up speed. Continuing movement, however, draws down the upper end of the link and the bolt lock, unlocking the bolt and putting the parts in the position shown in Figure 2 b. This also cams back the firing pin. Now the linkage has straightened out. Further movement of the slide therefore carries the bolt straight back, until it is brought to a stop by the buffer. This position is shown in Figure 2 c.

In single shot fire a notch in the rear end of the slide is engaged by the sear, and the mechanism stops in the position shown in Figure 2 c. In automatic fire the sear does not rise, and the bolt and slide start forward at once.

The slide is carried forward by the closing spring, contained in the hollow piston rod and pushing against the front end of the receiver. The closing movement is the reverse of the opening one just described. When the bolt reaches its forward position it stops (Figure 2 b), after which the continuation of the forward movement of the slide links the bolt lock into its recess in receiver.

When that is done the slide still has 3/16-inch to go. In moving that 3/16-inch it fires the gun, in a manner quite foreign to the hand arms the sportsman is familiar with. There are only two parts in the firing mechanism—the firing pin and the hammer. The firing pin is perfectly plain except for a lug at its rear end, by which it is cammed back by the link as already described. The hammer is nothing but a rectangular block fitting inside the slide at a point below the link, and moving as one piece with the slide. The final movement of the slide carries the hammer against the firing pin and fires the gun.

The trigger guard assembly (seen in Figure 2) carries on its left side a change lever which can be moved to positions for automatic fire, semi-automatic fire and safety. The change lever does this by varying the connection between the trigger and the sear.

The only remaining principal part is the gas cylinder. It is a simple cylinder screwed into the front end of the gas cylinder tube. Its cavity is about ½-inch in diameter and ½-inch long, so that the piston (which fits quite freely) moves entirely out of it early in its stroke. A large port passes through the barrel and gas cylinder bracket, but the amount of gas actually entering the

#### THE B. A. R. IN THE FIELD

In combat the Browning Automatic Rifle is used exactly as if it were a full-fledged machine gun. As an integral part of Infantry units as small as the squad, it is always on hand when needed, without a moment's delay. Thus each company commander has within his own organization, advancing with the rifle elements of the unit, two teams of automatic riflemen (each armed with one B. A. R.) which can in an instant add the ace-in-the-hole of full automatic fire to the solution of any tactical problem without the necessity of calling up machine guns from supporting troops.

The B. A. R. functions under circumstances which can be met as well by no other Infantry weapon. Its usefulness against low-flying aircraft, which may strafe or bomb even small troop concentrations, makes it the Infantry's most useful anti-aircraft weapon. On the offense its principal tasks are to reduce resistance in front of its own or another unit, to protect flanks of its own unit, and as important, to silence enemy resistance on those flanks so that supporting units may move up adjacent to its position. The B. A. R. normally forms the point of each advance guard of units moving into enemy territory, while in a defensive position they are usually placed well forward of the balance of the unit, where they can command at least 180° of traverse. They are used commonly in the defense of road blocks, as protection for the flanks of columns in motion and particularly at road crossings and down roads. Under new regulations, every vehicle otherwise unarmed, with the exception of command and reconnaissance cars, will mount at least one Browning. For this use there is in development a new truck mount, situated behind the cab, on which the gun may be given a full 360° traverse. The mount will be adapted to ground defense in any quarter as well as against menacing enemy

Far from rendering the Browning obsolete, the increased potential fire-power of Infantry units gained through the adoption of the semi-automatic M1 rifle has had an opposite effect in an awakening to the possibilities of *full-automatic* rifle fire. Certainly the improved Browning is destined to play a far more important role in the American Army of the future than has any automatic rifle before it.—EDITOR.

cylinder is governed by the corresponding port in the side of the gas cylinder itself. There are actually three of the latter ports, and ordinarily the smallest is aligned with the gas cylinder bracket. But in case of very unfavorable operating conditions, such as mud or dirty ammunition, the split pin holding the gas cylinder against turning in the tube can be removed and the gas cylinder turned to bring a medium or a large port into play.

All working parts except the gas cylinder can be readily dismounted with no other tool than a cartridge. For the gas cylinder a spanner is provided.

With the above description of the fundamentals of the mechanism and its operation, the reasons for some very interesting characteristics of the Browning can be seen.

One of the most striking of these characteristics is its simplicity. While at first sight this may appear at least partly due to the absence of any conventional type of firing mechanism, a second examination shows that the



Fig. 1: The old M-1918 Browning Automatic Rifle. Plentiful faults made it poorly suited to any but semi-automatic fire

gun must have a complete trigger and sear mechanism and a firing pin, even though the hammer is fixed.

A second striking characteristic is the fact that the gun stops with its breech open. This feature, while it would be very undesirable in an ordinary repeating arm, is of much benefit in an automatic gun. One reason is that it leaves the bore open to the circulation of air, which assists in cooling the barrel between bursts. Another is that it avoids the possibility of "cooking off" a round in the chamber of a hot barrel.

The gun's soft recoil is not apparent until it is fired. This is so marked that the gun can be fired almost indefinitely, even full automatic, without beating or straining the shooter. It is due partly to the gun's weight, partly to the fact that it is gas operated (the gas force on the piston which operates the mechanism acts equally in the opposite direction on the cylinder head and tends to force the gun forward) and partly to the fact that the mass of breechblock-and-slide strikes the rear of the barrel and tends to carry it forward just at discharge.

A fourth characteristic is the mechanical soundness of the design. Breakage of parts is almost unknown. The reason for this is that the breech mechanism parts are started and stopped smoothly at both ends of their travel. After unlocking, the linkage between the slide and the breechblock operates to start the latter gradually. At the end of backward travel, the buffer eases the stop. At the end of the forward travel again, the linkage slows and stops the breechblock. Mechanical soundness is further shown by the regularity of its functioning. It is a pleasure to hear and watch the gun when working fullautomatic, with the cases all issuing in the same line.

Accompanying these excellent features there were in the M-1918 gun some quite unfavorable ones. Despite the elementary nature of the gas cylinder, many failed to realize that it was exposed to a portion of the propellant gas and so required to be cleaned the same as the bore. The piston may allowably be a good many thousandths smaller than the cylinder, and considerable amount of rusting therefore will not impede functioning. But much rust could prevent turning out the gas cylinder, and it was possible by sufficiently gross neglect to freeze the piston.

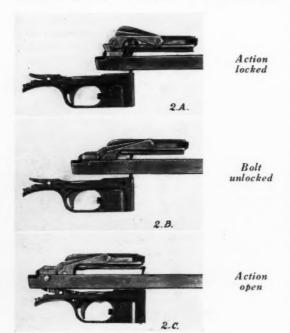
Many found difficulty in firing accurately in semiautomatic fire due to the slight hop given the gun by the forward movement of the bolt. The acquisition of a certain skill, beginning with the assumption of a correct position so that the sights did not move when the trigger was pulled in dry shooting, was necessary for good results.

Much greater trouble was experienced in making any profitable use of the full-automatic feature. It has been seen that the Browning is shaped like an ordinary rifle, and its form is therefore more familiar to the average shooter than the queer straight stock and consequent high sights of automatic guns (like the M-1909 already mentioned), designed to put the buttplate in line with the bore instead of below it. In consequence of the conventional stock form of the Browning, the muzzle tends to rise in recoil. The recoil from each shot is light, but in full-automatic fire the shots come in such quick succession that, unless the firer has unusual skill and strength, the muzzle climbs and fire is ineffective. This tendency in the M-1918 is so marked that little use could be made of its full-automatic fire power, the habitual manner of fire being semi-automatic. Still another defect in the M-1918 from a military point of view was its want of any mounting or support for use when desired.

The above deficiencies of the M-1918 naturally led to developments to eliminate them. These ended in the M-1918A2 which is now standard. The M-1918 can, however, be readily converted into the M-1918A2.

Some of the new features are apparent in the view of the M-1918A2 in Figure 3. Most conspicuous are the muzzle bipod, swiveled to the flash hider on the muzzle, the stock rest and the butt hook. In conjunction with a device to reduce the rate of full-automatic fire, described below, these enable the gun to be fired prone with ease and accuracy. They may be folded or removed if desired.

Other changes are visible. The upper sides of the foreend are cut off so that the barrel is entirely exposed. This increases slightly the risk of touching the barrel, but greatly improves its cooling in automatic fire. Guides are added to the trigger guard to facilitate quick inser-





tion of the magazines; these are quite worth while since (with faulty magazines eliminated) almost the only cause of malfunction of the gun is failure to send the magazine home. The M-1918 rear sight (identical with that of the M-1917 rifle) is replaced by one with good-sized knobs and clicks for elevation and windage.

The rest of the changes, while not visible, are important. Pistons and gas cylinders of new manufacture are made of a stainless steel. These do not rust, and whether they are cleaned or not is a matter of indifference. Should there be any concern as to accumulation of carbon in those parts (though it is seldom that this actually occurs) the gas cylinder can be unscrewed and wiped out, or the same result obtained without disassembly with a little oil, which will cause the carbon to loosen and blow out.

To avoid the necessity of restocking the gun to get control in full-automatic fire, there is added to the firing

mechanism an ingenious device for slowing down the cyclic rate. This consists of an inertia knock-off and spring in the forward end of the buffer tube. When the slide strikes the buffer at the end of its backward movement, this inertia piece moves to the rear a little distance and then returns under the action of its spring. The sear (which remains in an arrangement analogous to that for semi-automatic fire, and therefore engages the slide at the back end of each stroke) is not disengaged for the next shot until struck by the knock-off at the end of its little cycle. In this way the full-automatic rate of the gun is reduced from a normal 550 to 325 shots per minute. At this slower rate it is not difficult to control the tendency to climb, and in the prone position accurate automatic fire is regularly delivered. The slower rate gives other worthwhile advantages in the way of less heating and a lower ammunition expenditure.

### MACHINE GUNS EIGHT MONTHS AHEAD OF SCHEDULE

JUST A YEAR AGO last month, when the U. S. Army Ordnance Department ordered machine guns from General Motors, the contract called for initial deliveries in 20 months. Calculations were based on standard arsenal procedure, but GM executives of the AC Spark Plug, Frigidaire, and Saginaw Steering Gear divisions, who had never built guns, followed standard automotive practice—and the first guns rolled off their assembly lines in one year, or eight months ahead of schedule. Among their "modern miracles" was the discovery that 10 round holes could be punched in the barrel cooling sleeve at one stroke of the press (left). Old practice called for elliptical holes, requiring three machining oper-

ations per hole. Tumbling machines (right) remove rough edges from the hundreds of parts in a gun, eliminating nearly 90% of the former hand filing. Electric inspection lights set in the floor permit inspectors to look through gun barrels without having to hoist them to a window light. Fatigue is reduced; inspection is speeded up. A multiple vertical reaming machine (center) handles 12 gun barrels at a crack, the operation one of two required for rifling which used to take 15 operations. And best of all, GM has found a way to employ semi-skilled workers in operations like the milling of a trunnion block, normally handled by a skilled mechanic. —Business Week, May 31, 1941.







By GERALD AVERILL



# TRAINING COUNTS

I Ridge, just mention military rifle shooting. Of course the Rabbit Ridgers never had much use for the city slickers who admitted wasting good ammunition punching holes in paper targets, but when Gabe Sellar's oldest boy came back from a two-weeks' hitch in the C. M. T. C. with an incurable belly-flopping complex—well, Old Man Sellars like to have had a stroke. It seems that Junior, having been introduced to the advantages of the prone position, considered it something invented solely for his personal use, and from then on he steadfastly refused to turn loose a shot on anything until he had assumed a comfortable horizontal position, much to the disgust of the family and the detriment of the stew kettle.

Now, it must be admitted that Junior had a one-track mind and a decidedly narrow-gauge one at that. There is no question but that he went too far with his reclining propensities and there can be no doubt as to the horrific impact of his back, or rather belly-sliding tendencies upon his lead-slinging sire. The whole unfortunate affair ably served to demonstrate just what a lot of foolishness could result from the activities of them "army men" in even so short a time as two weeks.

Gabe and his neighbors over on the Ridge were old hunters, born and brought up in a good game country. And in the midst of plenty, they were filled with a vast contempt for those who were obliged to shoot at anything that wouldn't leak blood when a hole was punched in it. Basic training in the vicinity of the Ridge consisted of handing a boy a rifle, instructing him as to the peculiarities of that particular arm and turning him loose to find things out for himself. If the gun shot a foot to the right and two feet high, never monkey with the sights, just hold a foot to the left and a couple of feet low, and everything would be rosy. It shot that way for Gramp, the same for Pa—and look at all the game it brought down!

Now I've had considerable dealings with the Sellars Clan, and have had ample opportunity to observe the results of this training at first hand; too often I find a rotting carcass in the woods or finish off a starving, crawling cripple. I have also seen what rudimentary correct training can do for a boy who has had no actual hunting experience whatever, and over that same rotting carcass I like to think of that boy and the thousands like him who are really being trained to use a rifle the way it should be used.

I met him on a hunting trip, a decidedly unsatisfactory trip up to the time he appeared on the scene. There were four of these young nimrods, all of high school age. Three of them were well equipped for the hunt, red coats, adequate deer rifles and

a lot of pep and confidence. The fourth had no rifle, he had no shooting coat, and he stood a little apart from the others as they waited for my partner and I to plan their hunt. Now, I'm a sucker when I encounter a wistful look in the eye of youth, and in a very short time that boy and I were seated on a log talking things over. He didn't have much to say. He didn't intend to hunt, and he just came along for the ride. I gathered that he was humbly grateful to his friends for allowing him to be with them, and all he expected was to trail along with us while we made a drive. No, his Dad didn't own a rifle; he could have borrowed a shotgun, but he didn't think much of such a weapon on a deer hunt so he just came along without anything.

His eyes kept straying to my Springfield Sporter, but he never asked to handle it. That boy was a gentleman, and suddenly I had an overwhelming desire to do something for him. I opened the bolt and took a clip of cartridges from my pocket.

"Do you know how to handle a Springfield?" I asked.
"Oh, yes sir," came the answer, "I take Military at school. We only shoot the .22's, but we learn all about the '03, that is, all except actually shooting them."

I passed him the gun, suggested that he try the pull, and the moment he had the rifle in his hands I knew he was going to be all right.

The others were clamoring to get started and I told my partner to take them and go. They left without a question or a backward glance and I saw the hurt in my young companion's eyes as he watched them leave.

We were facing a low ridge sparsely covered with stunted poplar and as I watched the party swing around its base and skirt the shore of a little lake to our left, I had a hunch. There was a fair-sized cedar swamp beyond the ridge and we were standing almost directly in a runway.

"Son," I said, "You've got an even chance right here, with all the commotion that's due to happen over beyond that rise, anything that's in that swamp is going to move out of it."

I handed him a clip of 180-grain open-point loads, stilling his stammered protests against depriving me of my rifle. He dropped the muzzle away from me toward the ground and slid that clip home like a veteran, closed the bolt, turned on the safety, and carefully put the empty clip in his pocket. Somebody trained that boy! There were a few more questions. Yes, he knew what a deer looked like in the woods, and they had receiver sights on the .22's he used at school. So I did just what I would have liked an older person to do for me—at his age. I went away and left him sitting on a fallen tree, cuddling the rifle in his arms, his eyes fixed on the crest of that ridge.

I didn't go very far; there wasn't time. I had traveled less than five minutes toward the far right of the high ground when I heard the Springfield let go behind me, and I whirled and started back on the jump. It just didn't seem possible that he had sighted game so soon. I

was imagining all sorts of things.

He was standing exactly where I left him blowing on the mouth of the empty cartridge. He was blowing but he wasn't making a sound, and the only color left in his face was right on the tip of his stub nose. "Mister," he gasped, "I just shot at the biggest buck in the whole state of Maine, but I don't know whether I hit him or not." He pointed to a little opening far up on the very top of the ridge. "He came up from the other side, stopped and showed his head and shoulders against the sky-line. I couldn't see his shoulder so good but when he turned his head to the right, I got the bead right on it and squeezed. The bead covered up his head and then the gun kicked, and when I looked again, he was gone."

I don't know how far it was from where we were standing to the place he pointed out, but if I had measured it I think it would have been close to two hundred and fifty yards. He hung his handkerchief on a bush as a marker and we lined out from there in a hurry. We climbed that ridge, found the opening without any trouble and right spang in the middle of it lay one of the biggest bucks that I have ever seen. His head wasn't anything to brag about but he was big, and all meat from back of his ears to his hooves. That deer never knew what hit him, for the bullet had landed just to the rear of his right eye.

V 8 9

The kid couldn't believe it. He just stood and stared. Then his teeth began to rattle and he began to shake—as pretty a case of buck fever as you ever saw, but too late to do any harm. It didn't last very long, the knife work was too interesting and then there was some dragging. I hauled out the .45 and signaled the rest of the outfit in to help. We did our best but the tent was all of six miles from the kill and we couldn't get that deer out in one piece. I took the antlers and scalp which wasn't much of a problem after what that .30-'06 bullet had done to the skull, and we cut off the head and left it. We divided the rest of the deer and managed to get it to the car before dark.

The boy didn't have much to say, but I can still see him striding along beside me with the Springfield in one hand and that set of antlers in the other—good Yankee

stock trained right.

I don't know where he is now. I've never seen him since, but I'll always remember him as I saw him last and I'll bet he remembers me. He must be at the right age for military service now and if Uncle Sam is using him, I hope he's on the range instead of behind a typewriter. I hope he's on the range teaching some of the boys from the back country how to shoot.

# PIÑON PRAIRIE-PUPS

By FLOYD S. LEGGETT

I T WAS MY EVER-PRESENT anticipation of a hunt, and the desire to get out of the city, away from the crowds, that took me to the piñon-clad foothills of northern New Mexico's Sangre De Christo mountainsthe home of the prairie dog. Upon leaving the highway, I stopped to sight in my rifle for the ammunition I was to use that day. My rifle is an Enfield Sporter fitted with Redfield micrometer rear and Lyman 17-A front sights. Ammunition was handloaded, made up with Ideal 308241, a round-nose bullet of about 150 grains weight. The powder charge was 12.5 grains of duPont No. 80. Because of the fine fit of the bullet in the throat of the barrel, this combination will make 21/4-inch groups at one hundred yards when there is little wind to affect it. I sighted-in the rifle to hit about one inch high at 70 yards. This allows one the possibility of hits at 100 yards but means that at ranges below 70 yards the hold must be a little low. The velocity was estimated at between 1200 and 1300 foot seconds.

The first victim was shot at about 60 yards as he sat upright in front of his hole. The bullet must have hit squarely in the chest cavity because of the bloody froth that was splashed against the dirt. The little animal was knocked down into the hole where he could be plainly seen.

The inhabitants of this sun-baked little village seemed to realize that rifle blasts were not conducive to their welfare. If I wanted game I had to get farther from the highway where hunters and their weapons were not so well known. That meant about a three-mile drive down an old wood-hauler's trail, where I spotted another town, with little bundles of furred vitality running in every direction. I parked the car behind a knoll, crawled to its crest, and lay down in the shade of a sizable piñon tree. My presence was evidently known because about a half-dozen prairie dogs were standing straight up, looking this way and that, barking in their chirping way for all they were worth. As I squirmed to a more comfortable position those nearest me ducked into their holes and left only their ears and eyes above the ground. However, those that were farther away remained standing straight up on their haunches. Through my field glasses I tried to pick out the best shot. There was one off to itself quite a distance from the rest, and I decided that

by shooting at it I would not be apt to disturb those that were in the larger group. I lined my sight high on the dog's left shoulder and squeezed the trigger. After the shot the dog could not be seen. Until I went up to it, I didn't know whether I had made a hit or missed, as the estimated range was close to 100 yards. I threw in a fresh cartridge and looked to my right and saw a movement in the grass. Without field glasses I would probably never have seen that prairie dog, he was so nearly the color of the dead grass. I slid around into position, lined the sights on him and let off the trigger. I could hear the plunk of the bullet as it hit squarely between the front feet. All that dog did was roll over, wiggle his tail and kick his feet for a few seconds.

From then on I got no more shots where the full bodies of these small marmots were in view. When alarmed they have the habit of going into the mouth of the burrow and sticking only the top of their heads above the dirt. Anyone who has done much of this sort of shooting knows that this makes a very small target. With the aid of glasses I got several shots of this sort but in all but two cases did nothing except scare them deeper into their holes. These were killed instantly of course, and were easily obtained. The day was quiet and warm, and the hunting had been most interesting. I was especially pleased that every dog had been killed cleanly and had not escaped to his hole to die a lingering death.

As it was nearing lunch time, and I needed a meal, I decided to call it a day. I reluctantly left the piñon tree on the little hill that had offered me a shady spot from which to observe the activities of these denizens of the earth in their town. On arriving home, my wife immediately asked, "How many did you get?" I tried to explain the events of the morning in as interesting a manner as I could, and suggested that she try her hand at the fun. It was finally decided that both of us would go to the same place the next afternoon in the quest of more sport.

Shortly after lunch the next day, my wife and I were on our way, with our equipment bouncing along in the rear seat of the car. We parked in the same spot and, unseen by the prairie dogs, crawled to the top of the little hill to the shelter of the piñon tree. As usual, they were to be seen near practically every burrow. My wife took the first shot—too high. The big fat dog stood up a little straighter on his hind legs and fell at the second crack of the Savage Sporter. That .22 long-rifle

hollow-point cleanly broke his back as it tore through his shoulders. As we crawled from knoll to knoll using the shelter of the stunted piñons and the uneven ground we obtained several shots, most of them at rather long range. Our afternoon netted us eight prairie dogs.

Certain facts were again presented to me on that afternoon hunt. A .22 long-rifle hollow-point bullet, even of the high-speed variety, is not a sure killer on prairie dogs unless head or shoulder shots can be consistently made. A dog hit in the paunch will usually make it to his hole where eventually death overtakes him. These little bullets are destructive enough on most small game, but when it comes to the tough little prairie dog, it takes plenty of killing to anchor him on the spot. I find that the previously mentioned Ideal bullet 308241 rarely lets a solidly hit victim reach his hole. Personally I like to retrieve my hits rather than have to say, "Well, I hit him but he got to his hole."

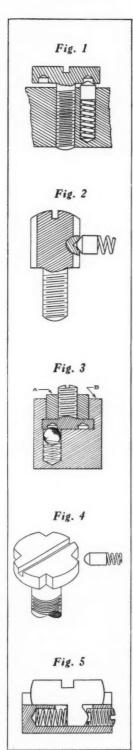
There are several other combinations available to those who load lead bullets for the .30-'06. One of these is the flat-nosed 172-grain bullet (Ideal 308403), which was originated by Harry Pope for target work, and is an excellent killer on small game because of its blunt point. Its only disadvantages are that it is so lightly seated in the case that it is hard to handle any place except on the target range, and that it will not feed through the magazine. This bullet is very accurate with 12.5 grains of No. 80 powder. In the higher-velocity lead-bullet class there is the 169-grain gas-check bullet (Ideal 311-413) which for me gives its best accuracy with 26 grains of duPont 171/2. This bullet can also be used successfully with 22.5 grains of Hercules Lightning, 34 grains of HiVel No. 2, or 17 grains of 80 powder. In my gun 26 grains of 171/2 outranks the rest for accuracy. This load is a little more expensive and is more trouble to assemble than the one used on the hunts with which this article deals. The load which kills my prairie dogs costs less than a half cent per round as I load it.

Even though the prairie dog is a pest to the farmer and the cattle man, he is the source of much real sport and pleasure to those who like to hunt him. If any of our large game contained as much vitality in proportion to its size as the little prairie-dog, I estimate that nothing less than an elephant rifle could be a popular arm for big-game hunting.



# ADJUSTABLE HANDGUN SIGHTS

By WALTER F. ROPER



THE only real difficulty in pistol sights is due to the small space available. Size is the limiting factor and in order to have as large and strong parts as possible, use of the front sight for elevation and the rear sight for windage would seem a practical solution.

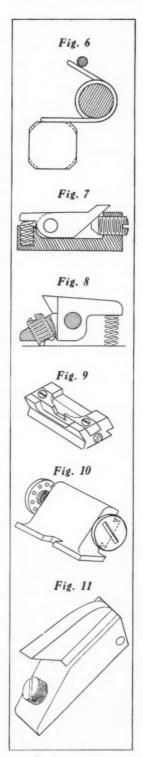
The mechanism required for self locking is as simple and as old as the hills. The indexing head of a milling machine is the best possible example of a manually-operated, self-locking mechanism. In it a spring-operated plunger is carried by a lever attached to the micrometer screw. This plunger registers with a row of holes in a stationary plate. By turning the lever the correct number of holes the screw is made to revolve whatever part of a revolution is needed to give the motion required. The plunger must be withdrawn from the hole before the lever can be turned but that operation can be easily eliminated as shown in Figure 1.

Notice that in Figure 1 the end of the plunger does not fit down into the hole in the screw head but instead its end is cone-shaped. If the spring is strong enough this construction will prevent any force such as vibration from within the mechanism from turning the screw, but the additional force needed to make the screw "cam" the plunger out of the hole can be easily produced by the use of a screw driver. This is the plunger-lock type of self-locking mechanism, and several variations of it are shown in Figures 2, 3 and 4.

All of these schemes produce dependable self-locking and, depending upon the shape of the end of the plunger, the strength of the spring and the shape of the hole or groove with which the plunger engages, the "click" will be faint, plainly audible or really snappy. The amount of click does not, however, indicate the holding power as any of these arrangements will do the job properly.

Simplicity of design is always desirable and especially so when space is limited. In Figures 5, 6, 7 and 8 are shown mechanisms which, although just as positive in their action as the plunger lock, make one part do the work of two and eliminate the plunger entirely.

Two possibilities are open to the designer of selflocking sights for American handguns and his choice will be determined by his ideas on the subject of size of parts and strength. He can put the adjustments for both elevation and windage in the rear sight; in which case, if the sight is kept reasonably small, the parts must be decidedly tiny, or he can put the elevation adjustment in the front sight and the windage adjustment in the rear sight, thus permitting much larger springs and holding devices. This same consideration will determine whether the sights are made to be entirely self-contained with the movable part or parts in the sight itself and the sight base fixed on the gun, or whether the whole sight shall be moved in a dovetail slot in the frame of the gun. Figures 10 and 11 show how well these two possibilities may be worked out.



# ELEMENTS OF RELOADING

By J. V. K. WAGAR

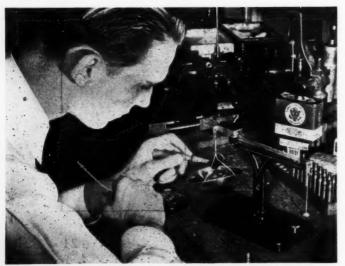
CONCLUSION: FULL-POWER HUNTING LOADS

RELOADERS WHO WISH to load high-intensity hunting ammunition, but who are just beginning their reloading experiences, should never forget that they are planning to assemble the kind of cartridges that our long-established factories began making only after about 40 years of experience, and which they carried to present high intensities only after about 60 years of experience and development. In high-intensity cartridges one works with pressures close to the limits of what brass cartridge cases will hold without bursting. Improperly handled, these can split stocks off bolt-action rifles, wreck action parts or destroy eyes in the event of burst cases.

The beginner who can consult an experienced and accident-free local reloader willing to check upon proposals in regard to bullet weight, powder charge and the means of determining them, seating depths and primers used, and who will help standardize flash-hole size, cartridge-case quality, bullet size and primer pocket condition, can proceed with some assurance of safety. Otherwise the beginner will do well to at first try out his tools, components, ideas and abilities upon sub- or medium-power loads.

An extremely careful and experienced reloader can produce hunting ammunition even more reliable than the splendid factory ammunition available. But-in my cartridge collection is a .300 Savage cartridge which failed to fire as a hunter used it to target his rifle for an Alaskan bear hunt. It had a good primer, powder, a proper bullet, but no flash hole! A .30-'06 case is similarly without a flash hole. In the same collection are factory .32-20 and .45-70 cartridges with extra bullets loaded in among the powder. There are two .250-3000 cartridges with dangerously protruding primers. There is a fired 7-mm. Mauser cartridge case with a slightly flattened primer; all that remains of a cartridge that exploded with a weak pop and which failed to put down a big mule deer buck vitally centered with my sights 50 yards down-hill from where I sat.

The greatest care is necessary when weighing charges of dense powder for full power loads



Many hunters try either factory or handloaded cartridges through their rifle magazines and chambers before going hunting to discover poorly fitting cartridges before they can spoil a trip. The reloader can also make sure that each cartridge case has a flash hole of a uniform size with a priming pellet and anvil, a powder charge with carefully checked weight, a bullet of hand-checked weight and diameter, seated to a depth that will work properly through the action, but seated far enough out to correspond with recommended standards.

The careful reloader for a bolt-action rifle can make another good test by stripping the bolt of its firing pin, spring, and cocking piece (to thus remove the tension of the firing pin against the sear) and one by one chambering all new factory cartridges, empty cases, and especially reloaded cartridges, to make sure that none has been sized short enough to give dangerous headspacing. In most modern bolt actions with proper headspacing, proper cartridges will when chambered permit scant or no end play of a seated stripped bolt, whereas cases sized short enough to possibly rupture when fired will at once permit noticeable end play.

Some Niedner and other special cartridges were for a time made with necks reamed to an exact size and fired in tight chambers supporting case necks to the extent that no neck sizing was necessary when seating standard bullets. In general, however, all modern hunting cartridges need neck sizing before they will again hold jacketed bullets securely, and many lever-action rifles firing high-intensity cartridges spring enough to require full-length case sizing to produce ammunition which will feed readily through a repeating rifle. In plain words, one will meet much more grief in making high-pressure loads for lever-actions than for bolt-action rifles, whatever their other advantages.

Tight, fired cases often give better accuracy in target rifles than will new cartridge cases which tend to lie slightly off axis at the bottom of the chamber, although this argument has probably been overworked in respect to rimless cartridges in many modern rifles, which are so snugly head-spaced that the shoulders of the bottleneck align new cartridges quite as well as fired ones. At any rate riflemen who depend upon rapid-fire repeating mechanisms for their hunting usually prefer well-sized cases that feed and eject without a hitch. If full-length sizing is done with hand-operated dies, it is unlikely that cases are made dangerously small, i.e., made so short for their chambers that they are torn apart as the front end of the case expands upon firing to cling momentarily to the chamber walls, while the head is stretched backwards until it is supported by the bolt face. On the other hand, in some of the new heavy duty loading presses, rimless cases can be made too short between shoulder and head without noticeable effort. Every precaution should be taken to properly adjust the dies and to check the product.



A double powder charge, accidentally thrown while talking to friends, blew up the cylinder of this Peacemaker

Particular care should be taken with the .35 Remington, .400 Whelen, and 10.75-mm. cartridges, which have very small seating shoulders for cartridge support.

One reason for hunters to load their own ammunition occurs when powerfully supported single-shot or double rifles are chambered for the .30-40 Krag cartridge which is loaded by factories only to the 42,000 pound maximum pressure considered safe for Krag rifles. New cases will withstand somewhat higher pressures in more adequately supported rifles, and with modern powders will safely duplicate the performance of the earlier .30-'06 loads.

Hunting bullets of 150 grains can be driven in the .30-40 at 2,770 f.-s. with 46 grains of duPont 4064 or 180-grain jacketed bullets at 2,425 f.-s. with 40 grains of the same powder. These are maximum loads for the Krag, but are well within the safety of cases in more powerful actions.

Mr. C. Lee Curtis and other users of .30-40 singleshot rifles have made .30-40 cases from .405 W.C.F. cases which, when thus sized down, give increased thickness of brass at most points, requiring reaming inside the neck to accommodate some bullets.

Since .30-caliber rifles vary in diameter between .306" for some .30-30's and .30-40 Krags up to .3105 for some Enfields or even .3125 for some Krags or Ross rifles, the reloader will do well to match jacketed-bullet and groove-diameter measurements. Some .30-30 bullets will run .306", others .308", still other .30-caliber bullets .309" and some .32-20 bullets as large as .311". Most neck-sizing dies make the necks small enough to hold even the smallest .30-caliber bullets, but neck expanding plugs can be had in practically any size needed.

Since brass always springs back from any sizing (which is why cartridge cases will extract easily after firing) neck dies or expanding plugs never measure exactly the size of the resized case. Hence this phase of reloading is a particularly good thing to talk over with some wellequipped friend. Then too, neck dies sometimes come in sizes which will not do exactly what they are supposed to do, although they may fit elsewhere in the loading game. One .257 Roberts neck die sent me was so large that new cases entered it as easily as they did a rifle chamber, and, of course, the factory readily exchanged it. A .45-70 die ordered to size case necks to hold cast bullets friction tight was so much under size that it was a nuisance, until I discovered that it made the necks just right to hold factory-made .45 Sharps paperpatched bullets miking .453".

The .22 Niedner Magnum and .25 Niedner-Krag, the .25, .35, and .400 Whelen, the .276 and .280 Dubiels, the .350 Griffin & Howe Magnum and similar special car-

tridges not regularly stocked by gun stores are often more conveniently reloaded than purchased, and have all been standardized by their designers and manufacturers, whose advice should be followed as to proper components.

It is probably in vermin shooting that the rifleman most greatly appreciates reloading high-intensity cartridges, for here he shoots enough shots to make the expense of factory cartridges burdensome. Even at the recently increased prices for factory-made bullets one can reload high-powered cartridges for prices lower than one can buy them. The Western Tool & Copper Works makes vermin bullets of 70 grains to be fired in the .250-3000 at 3,100 f.-s., makes a 95-grain .270 W.C.F. vermin bullet, 105 and 110-grain 7-mm. bullets, and 115-grain vermin bullets for the .30-40, .30-'06, and .300 Savage.

In these days when powder companies are not recommending powder charges for the newer powders, the reloaders will find that quite safe charges can be developed for light vermin bullets by using a very flexible powder, as duPont 3031, and choosing for one of the light vermin bullets the maximum 3031 powder charge suggested in the various reloading handbooks for the next heaviest standard bullet in the same cartridge. Thus one obtains augmented velocities, reduced pressures, quite good killing for pests and usually good accuracy.

For high-speed loads 110-grain jacketed bullets have long been used in the various .30-caliber rifles, and are listed with time-proved powder charges in Belding & Mull and Ideal handbooks. In general it will be found that these or shorter bullets do not give the best accuracy in the long throats of Krag rifles, even when loaded far out, but shoot effectively in other .30-caliber rifles.

As expensive as most .30-caliber bullets are these days (except for various .32-20 bullets which in general will not stand really high velocities), most vermin shooters find themselves sooner or later tempted by the Hornet-Zipper-Swift tribe, which shoots less expensive bullets and which uses lighter powder charges for given velocities.

Some deer hunters who use .30-'06 rifles for all-around shooting find regular loads a bit heavy for small deer, but that the readily expanded .30-30 soft-pointed 170-grain bullet fired by 46 grains of 3031 at 2,530 f.-s., or with even a slightly lighter load, makes an excellent deer killer.

At this particular time it is difficult to recommend a great number of loads that can be assuredly assembled. Many favorite loads in my record books have been based upon such powders as duPont 151/2, 171/2, 80, 1204, 18 and other powders which some shooters still possess, but which are now seldom found in stores. The new and better powders which have replaced them no longer carry recommended charges on the canister labels, and a complete range of charges have in few instances been worked out by others. Belding & Mull and Ideal handbooks, and books like Sharpe's "Complete Guide to Handloading" (which is recent enough to include charges for some of the latest powders) and releases of the Dope Bag in THE AMERICAN RIFLEMAN are the best sources of information.

The rifleman who reloads the year around, for target, small game and vermin soon has the experience and can afford the proper tools with which to assemble the few cartridges needed for big game hunting. Otherwise one may question that reloading is a paying game for modern big-game hunting. Whether one goes to nearby or distant lands, the ammunition cost per hunt is a very small item in the cost of the trip.

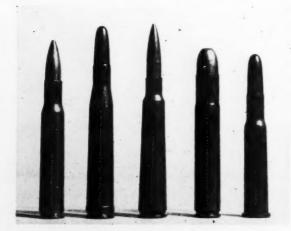
It happens that most of the big game I have shot in the past decade has been killed with handloads, but I must admit that such loads were economically possible because of tools, powder measures, scales, sizers, lubricators and other equipment already owned rather than obtained for making cartridges for the big-game hunt. For the older cartridges many of the early-day Sharps, Ballard, Winchester, Marlin, Savage, and other obsolete loading tools, some of them still quite numerous, will load cartridges quite as well as newer tools.

Tools for the .250-3000, .257 Roberts, .30-40, .30-'06 and other popular sizes are seldom for sale at low prices as used goods, simply because of their popularity, but several mechanically clever friends have saved a little money by buying at very low prices Ideal No. 3 or No. 6 handles threaded for double adjustable chambers but made for .303 Savage, .30-30, .32-40, .32 Special or other no longer popular reloading sizes; then reaming out the case priming and chamber seating holes to snugly fit the .30-'06 or other desired cases and buying suitable double adjustable chambers. For priming rimless cases a small hole is made on one side to pivot one of the late standard priming hooks, or other devices are applied. Damaged or unwanted moulds on Ideal No. 6 handles are easily removed by the use of a hacksaw and file.

As a rule the beginner does well to buy one of the less expensive outfits first and to acquire the most expensive bench tools only after he knows how far he wishes to travel in this game. Major Naramore in the January 1941 AMERICAN RIFLEMAN gave an excellent comparison of the available loading tools, and much can be learned concerning their respective merit from RIFLEMAN information or from friends who own different tools.

Bench tools are faster than tools held in the hands, provided that one is at the bench loading for all he is worth. Some men who reload with hand tools can do much of their de- and recapping, neck sizing, expanding and priming while sitting around talking to friends or families; going off by themselves only when the serious business of powder measuring is to be accomplished. A few tools like the Modern Bond Model C can be used as either hand or bench tools. When using the Bond Model C

How cartridges are supported in the chamber (left to right): shoulder and head; belt ahead of rim; strong taper and bottleneck; rimless with slight bottleneck for headspacing; conventional headspacing against a rim



as a hand tool I reverse the handle so that in the closed position it closely parallels the seating chamber, thus permitting one to use it as a nutcracker tool and permitting the fingers of both hands to be close together for guiding the various components into desired positions.

If limited in funds for buying equipment one saves the most time by buying an inexpensive type of reloading tool and with it an automatic powder measure, rather than buying an expensive bench tool and measuring powder with a dipper.

As Major Naramore stated in the first part of his series, one can get along without scales (for checking powder charges) if one uses properly-set powder measures for charges below those listed as maximum. The beginner who can afford a reloading tool and powder measure, but who can't buy a set of scales until later, can set the measure according to handbook instructions for a given powder and charge, measure powder into empty cases and then cork these and take them to a friend's scales or to a friendly druggist to check the weight thrown. Another method is to visit a reloader friend with scales, to carefully measure out a given weight of powder, to file an empty case to a length which will just hold the desired charge level full and to scratch upon the outside of the case unmistakable figures showing its capacity.

When starting to reload a new powder charge, it is a good idea to deliberately fill one case twice, just to see what a double charge would look like. If the powder bulks well and the case capacity is limited, such double charges usually completely fill or run over a case. If powder bulk and case capacity are such that double charges are difficult to observe, extra precautions should be taken.

Looking into a number of charged cases at once (held in a loading block and properly tipped to admit light) is a good way to detect an over charge. Loading blocks to permit such paired comparisons or the orderly arrangement of cases as they are charged are easily made or can be bought from any reloading supply dealer.

It is well never to visit or converse with others while charging cartridge cases with dense powder. The only gun I ever blew up as the result of improper loading resulted from trying to talk with a friend while tripping a powder measure into cartridges I was hastily loading.

Powder should be guarded against lint or other fibrous inclusions. If a canister of powder is spilled upon a table or the floor it is well to screen it before loading any of it. A few strands of wool or other tiny particles from worn garments mixed in with the powder may retard the flow through the measure enough so that one charge is too light and the next dangerously heavy.

Two powder measures or an Ideal No. 6 double powder measure are time savers for the man who makes many duplex loads. In previous installments I have mentioned the usefulness of smokeless-powder-primed black-powder charges for many of the older cartridges. Those who have difficulty igniting light or medium charges of I.M.R. powders in large cases will find that 2 to 3 grains (bulk) of fine black powder measured into each case will usually give uniform ignition without the use of excessively hot primers. Maximum loads should not be so primed and of course seldom need such help, but the lighter loads often shoot more uniformly when thus helped.

A good example of this is a favorite mid-range load consisting of any suitable primer ranging from obsolete black-powder primers to modern smokeless-powder primers, 3 grains bulk of FFg black powder and 13 grains weight of duPont 1204 behind the 154-grain Ideal bullet 308241 in the .30-40, in which 1204 is not supposed to burn well.

Duplex loads are useful, but the promiscuous mixing of high-pressure powders should not be attempted by those lacking long and successful experience with reloading.

Cases should be carefully inspected and sorted for the best results in rifle cartridge reloading. The .25-20 Single-Shot, .25-35, .30-30, .30-'06, .32-40, .38-55, .45-70 and a few other sizes are found made for two or three different sizes of primers, and since the larger primers usually carry increased fulminate, a different rate of ignition will occur from shot to shot if primers vary in size-even when the same powder charges and bullets are used. Similarly, cases with large flash holes should be separated from those with small ones. Some earlier cases have much thinner heads than later ones, giving rise to differences in powder capacity with resulting differences in firing pressures and abilities to withstand stresses generated. Cases used for high intensity loads should be particularly well inspected for any signs of spreading or failure about flash holes, primer pockets, and in front of the head either inside or out. I rather favor vigorous neck sizing and expansion because these operations induce neck splitting or failure and consequent discarding of cases before failure is apt to occur elsewhere.

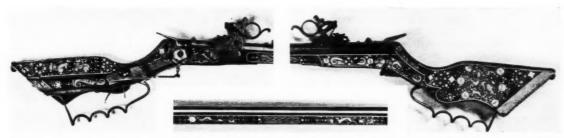
Above all things the reloader should remember that the best accuracy and least danger attend the greatest uniformity of reloading procedures and of firing conditions. If he is quick to realize or to sense what any change of reloading and firing conditions will mean, he can avoid trouble. If he varies conditions through curiosity or carelessness, sooner or later he will have accidents.

Tighter chambers, quicker twists, smaller groove diameters, lands with greater displacements, rougher bores and shorter throats will increase pressures for cartridges which have proved safe in other barrels.

Larger primers, higher-pressure primers (those made for firing high-pressure military or Magnum cartridges instead of cartridges with lower pressures), larger flash holes, flash holes with broken edges and cases with smaller capacity give increased pressures. Bullets that are heavier, harder, thicker-jacketed, larger in diameter or seated more deeply than usual will increase pressures. Increased cartridge temperatures will increase pressures or will properly burn powders which fail to burn in certain cartridges at low temperatures. Heavier crimping, less lubrication or wads loaded at the bases of bullets increase pressures. Grease in the barrel has the same effect.

Finally, the best reloader is the fellow who knows exactly what he is doing as the result of much thinking and reading. Even though not a skilled chemist or physicist, the average American is mechanical enough to understand what chemical and physical reactions occur as cartridges are fired. It is this characteristic that makes reloading such a grand game.

### N. R. A. MUSEUM — III



THE WHEELLOCK RIFLE illustrated contrasts strongly with the demi-battery pistols shown last month. Here is an arm expressive of the love of German gunmakers for elaborate inlay, rather than for the fine chasing of metal parts preferred by the Italians of the same period. Dating from the early years of the 17th Century, the present example is representative of arms of this type, with scenes of the chase covering nearly every exposed portion of the stock.

Both lock and stock are forms found solely on these arms. The outline of the butt has given rise to the name tschinke or tesching, so called from its resemblance to the foot of the hind or European deer. Generally considered to have been women's arms on account of the graceful outline and unusually light weight, they were in reality weapons of the lesser nobility, and purely sporting in purpose. The barrel of the present example, long and slightly flared at the muzzle, bears on its breech the initials FP of an unknown German armourer. The type

seems to have been popular in the Baltic provinces alone.

The ballistic characteristics of these arms pave the way for some interesting possibilities. The long octagonal barrel, small in caliber, rifled, and with simple front sight and notch rear sight set far ahead of the eye are duplicated in but one other early arms form—the American or "Kentucky" rifle. The generally accepted theory ascribes the short, heavy pirchsbuchse of the South Germans as the logical ancestor of the American rifle-an arm similar only in the fact of being rifled. Yet here is an arm of equal antiquity and one certainly as well known to the Germans who settled in Lancaster and originated the American rifle as was the much less similar heavy wheellock rifle. Every indication present in the arms themselves points far more strongly to the graceful tschinke of the 17th Century Baltic huntsman than to the clumsy weapon of the Black Forest as the true ancestor of our "Kentucky" rifle. The present example is from the collection of William Randolph Hearst.

# Any Alibis?

Thrashing out the woes of the handgunner . . this month another champion talks about—

#### "SHOOTING THE .22 PISTOL"

THAT "PESKY LITTLE .22 PISTOL," as it is often referred to among pistol shooters, is my favorite among target pistols, and for that reason alone I have probably had a little more success shooting it than I have either with the .38 or .45-caliber guns.

As is the case with any kind of shooting, equipment is the first thing to consider and it must be good, and suited to your desires. You must first of all have confidence in your ability to shoot whatever gun you select. For your gun you should choose, I believe, either the Match Target Woodsman, or the Model-E or Model-HE Hi-Standard in view of the timed-fire, rapid-fire, and the three-stage matches.

I like a trigger pull between two and one half and three pounds. By having my trigger pull that heavy I do not lose shots caused by the gun going off before I am ready. That pull must be nice and sharp with no creep of course.

Grips to fit your hand are just as essential for the .22 as they are for the .38 or .45. Some people use only checkered grips. Personally, I like mine taped, with just plain tire tape. Yes, it is dirty and sticky and messes your hands all up, but when you get hold of that grip it does not slip or change position in your hand while you are in the middle of a string of rapid fire. I find that it is just as essential that I do not change my grip on the .22, as it is on the .45.

Some shooters will argue that you should not grip the .22 when shooting it but should hold it loosely in your hand, since there is no recoil to speak of. I do not wish to have any argument with those gentlemen, but I grip mine and I grip it pretty hard; not quite as hard as Harry Reeves might grip his .45, but hard enough to squash the sticky tape up between my fingers, to where the slightest change of position of the gun in my hand is next to impossible. The tape must be changed regularly, for when it gets slick it is no longer of any value, and is of course worse than no tape at all. I find that a good thumb rest built on the grips helps me to catch the gun the same way each time and to hold it that way.

I like my guns to be equipped with click adjustable sights in order that I may be able to change them quickly and correctly, as I always do when I find my group is going where it shouldn't. One click on a sight at the right time will usually mean the difference between a good score and a poor one with me. I don't like to hold off to one side or away up in the right-hand corner or least of all at the top of the black. In shooting the .22, I find I do my best shooting when I hold at the bottom of the ten-ring at both 50 and 25 yards because it gives me a little closer hold, and therefore makes my groups a little tighter. I don't hold there with the .38 or .45, as due to the heavier recoil I am unable to align my sights quickly enough in rapid fire. I do not have that trouble with the .22

Getting back to equipment again, I think next to a good gun a good spotting scope is the most essential thing any pistol shooter ever added to his equipment. Nothing worries me more than to take a peek through my scope after the third or fourth shot at 50 yards and find that I am unable to locate all of my shots. If I cannot locate a shot right away, the first thing that pops into my mind is: "Wrong target?" and my scores drop from there on.

Now as to the use of the scope after you get it. Here is the way I use mine: I set it up and adjust it as well as I can, then I always check about three times to make sure it is on my target. I get all set and upon the command to fire, I fire once and try to figure out where it went while I am stooping over to take a peek through the scope. When I do this, I try to keep from changing the position of my feet and I never lay the gun down. If the shot was good and the wind is not blowing I usually fire the remaining four shots without laying the gun down, changing the position of my feet, or taking another peek through the scope; that is, provided they go good and I am satisfied with them in my own mind. After firing a shot I always give my right eye (I shoot righthanded and use my right eye only) time to adjust itself and clear up again before I fire the next shot. I think that from one to three minutes is plenty of time to fire a string of five shots at 50 yards; that is, providing the wind is not blowing, in which case I usually take every advantage of all lulls to fire as many shots as possible. I shoot slow fire fast, finish, check my target with my scope and step back from the firing line.

Now comes the question of stance on the firing line. If you look down a firing line at the twenty top pistol shooters, you will probably notice that not more than two of them will be standing in the same position. I have my own particular stance, and although I have been criticized many times for it, I still use it; and have no intentions of changing it. I stand at right angles to the target with my feet wide apart (the harder the wind blows and the tougher the going the farther apart my feet go), but that is no reason you, or anyone else should stand that way. Make yourself comfortable; don't get in a strain of any kind.

If they discontinued .22-caliber matches altogether I would keep my .22 and shoot it as much as I did the other guns, for the benefit I think it would give me in making my other scores better. I find that when I get in a slump with either the .38 or .45, I can usually take the .22, and after firing it a few times, find myself flinching with it, and then I know just why my .38 or .45 scores are on the down grade.

I know the tendency among beginners is to try and get a .22 and a .38 exactly alike, in order that they may practice with the .22 and then shoot the .38. That is, I believe, where most people make a mistake in selecting guns. I would suggest that the beginner get his .38 Officers' Model or other .38-caliber revolver that he intends to use as a target gun, and then get a .22-caliber semi-automatic pistol to go with it, as his scores will be much better with this type of .22, and he will gain confidence in his ability to shoot all his guns. Without confidence in his guns or his ability to shoot them, a man can never reach the top in pistol competition.

Mel Rogers

### The Old Coach's Corner

#### MATCH SHOOTING

This month I am going to briefly outline the procedure in Match Shooting, and the best way to order your shooting to conform to that procedure.

Match shooting is quite different from the informal practice you have been doing so far, but if you understand its procedure you will not be rattled nor confused.

A letter to the official in charge will bring a program giving all necessary information. Immediately on arrival at the range you should register at the proper office. There you will be given a number by which you will be identified in all records and scores throughout the tournament. At most Registered Tournaments competitors are divided into several groups on the basis of their previous scores, and each group competes among itself for prizes. The older shooters have their classification published in the Annual N. R. A. Classification Summary, but when you register you must be prepared to furnish information on your previous scores to be properly grouped.

If you have fired any of the N. R. A. Qualification Courses make a record of your scores and bring it with you. Or, have your club secretary give you a signed statement of your average practice scores over 50 yards, 50 meters, and 100 yards. If you do not bring such information you will be classed with the shooters who are in the upper ranks nationally. The classes are Master, Expert, Sharpshooter, and Marksman.

Look over the program of the tournament, decide which matches you wish to enter, and then make your official entries for those matches at the Statistical Office. After making your entry, watch for announcement on Squadding Tickets, giving your time and target assignment.

By all means get to the firing point in rear of the target you are going to shoot on, 15 minutes before the time you are scheduled to shoot. You will need every minute of that time to get ready. Sit down in rear of your firing point, take out your score book and refer to the records of your shooting at this distance before, decide what elevation you will use and set your sight at that elevation. Look at the wind, decide what windage you will use for your first shot (supposing that the wind does not change in the meantime) and set your wind gauge accordingly. Then check these sight adjustments again. Fill your cartridge block with the right number of cartridges you will need for the match plus the number for warmers and sighters. Make your entries in your score book, and particularly note on its page in large numbers the number of your target. Then relax absolutely, and rest your eyes.

The range officer will call your relay up to the firing point. Go up at once and take your position immediately to the right of your numbered stake. No portion of your body must touch the ground in advance of the line.

Locate your scope so that to see through it all you have to do is to move your head slightly to one side. Train and focus the scope on your target, and be sure it is trained on your target. Move your forked rest, cartridge block, and score book into convenient positions so you can reach them all without raising your elbows. See that your spotting scope has not been disturbed and that it is still trained on your target. Then recheck your elevation and windage,

and see that the wind has not changed since you first set the gauge. And then relax.

In outdoor tournaments ranges are divided into two classes. Mid-range is 50 yards, 50 meters, and 100 yards. Long range is 200 yards. At mid-ranges, from the command "Commence Firing" five minutes are allowed for warming and sighting shots, plus 45 seconds for each record shot. You may take as many or as few warming and sighting shots as you wish. No division of the time between warming and sighting shots and record shots is made. Warmers and sighters are always fired on a separate bullseye which is always the top bullseye on your frame. A small-bore rifle does not shoot consistently until it has been warmed up, and as I have said before, I think it is best to fire a couple of warmers rapidly, simply aiming them roughly so they will strike anywhere in the butt-stop, but not on a target. Then very carefully, but without delay, fire three shots on your sighting target, note where the center of the triangle formed by these three bullet holes falls, and if it is not in or close to the center of the X-ring, make the necessary change in your sight adjustment.

The record target may have more than one bullseye, and the range officer will tell you how many shots you *must* fire on each bull. Again be sure that you fire only on your own targets.

If you are a beginner your one great trouble when you start to shoot in a match may be buck fever. Indeed many old shots are also troubled with it. Whether you get it or not depends upon how much confidence you have in yourself, based on your previous practice, and how you react under stiff competition. Some men are spurred to greater effort, and with others the effect is just the opposite. I confess that after a great many years of shooting I have to fight against it, and I do it by getting myself so absorbed in the ballistic problem involved that I forget all about its being a match.

Accuracy is merely another word for uniformity. Uniformity in everything you do is just as important, probably more so, than accuracy in your rifle and ammunition. Keep your left elbow constantly in its spot on the ground, and your left hand on the forearm, with sling tension constant and undisturbed. Chances are that if you alter or disturb these you will go out for a nine. Be sure you have a relaxed, unstrained position in which your sights point naturally on the bull, without the rifle having to be pulled and muscled over. Such a position should have been assured at the start, even before you took your sighting shots. Watch through your scope where your group is forming, and if there is any tendency for it to build up a little off center do not hesitate to change the sight a click or so. Also watch the wind closely, and try not to get caught in any sudden change.

When your last shot has been fired take your score book, note in it any changes in sight adjustment you made during your score, and any changes in wind, as well as the particular shot when these changes were made.

Later on in the day watch the bulletin board for the preliminary posting of the scores of the match. If your score as then posted does not agree with what you think it should be, right then and there is your only chance to protest it to the Statistical Office.

From now on, practice in accordance with the above procedure. Not being hurried or confused you are liable to shoot better. Particularly, you are more liable to pull bulls instead of boneheads.

### **HOW TO CHOOSE A MATCH RIFLE**

### Points to check when buying a new rifle

The purchase of a new match rifle is a serious thing for a target shooter-not only because of the money involved, but because it may make a difference in the way he shoots. Here are some of the things to check:

- 1. An accurate barrelobviously. Be sure that it's comfortably heavy so it will be steady for a long series of shots.
- 2. The trigger squeeze is also of tremendous importance. Try the trigger on several guns (be sure to include a Model 37 with the new "Miracle" trigger). Get one that's not only crisp and clean, but also one without backlash!
- 3. The bolt should have large, heat-treated wear-ing surfaces. It should work smoothly and easily. Lock time should be short as possible.
- 4. Make sure the comb feels comfortable for both iron sight and scope sight combinations.
- 5. Check the pistol grip. For sensitive control of trigger finger, it should be properly shaped, and placed close to the trigger.
- 6. Be sure the fore-end is long and wide enough for easy, steady holding.

- 7. The butt should be wide for steady, comfortable bearing on the shoulder. Butt plate should be sharp checkered to prevent slipping.
- a. Try the rear sight for rigidity, ease of operation, ease of reading, and variety of apertures.
- 9. Check the front sight for rigidity, ease of re moving and replacing, and variety of discs available.
- 10. The scope sight sighting plane should be ex-actly the same as the iron sighting plane.
- 11. The muzzle should be countersunk - preferably double countersunk, to protect the rifling.
- 12. The front sling swivel should be adjustable.
- 13. A loading platform for single loading will prevent shaved bullets or rubbing off of lubrication.

Check any rifle you buy against that list of points. (Of course-you'll end up with a Model 37-and Mister, you'll really be happy

### THE HUNTER'S CORNER

A great many target shooters are also expert big game hunters. As a result of their experience in big bore target shooting, these men often demand velocities and accuracy standards in a hunting rifle which can only be met with the newer loads with comparatively

light weight bullets.



A major problem of these shooters has been the disintegration or loss of weight of these bullets on impact. They have found a simple and completely satisfactory solution in the Remington Core-Lokt mushroom bullet. This bullet is constructed to ensure maximum expansion at all hunting expansion at all hunting ranges without disintegration. The Core-Lokt construction compresses the bullet core in the heavy metal jacket so that they cannot separate. The bullet mushrooms to about twice the original caliber.

#### FOR SHOOTERS



How much do you know about your favorite sport? Try these questions and find out. The answers are below. No cross-fir-ing! Wait till you've tried all the questions before going after the answers.

- 1. Does muzzle whip occur in a rifle barrel before or after the bullet has left the muzzle?
- 2. What is "parallax" in a shooting
- 3. How long does the average .22 match bullet remain in the barrel after the primer is struck?
- 4. What makes the "bullet licker" act that way?
- 5. Why do some shooters blow through the barrel after each shot?
- **6.** What sporting event in the United States has the largest number of competitors?
- 7. Do shots always go high when a rifle barrel overheats?
- 8. If a pistol is fired rearward from a plane which is power diving at a speed greater than the muzzle veloc-ity of the bullet, will the bullet get out of the muzzle?

#### Here are the answers for those who didn't peek

- 1. Muzzle whip begins almost instantane ously after ignition and continues well after the bullet has left the muzzle.
- 2. "Parallax" means that the cross hairs of the scope and the projected image do not coincide.
- 3. The average .22 match bullet in the 28-mch barrel of a Model 37 takes about .0033 seconds from cartridge to muzzle.
- 4. In the black powder days a little mois-ture on the bullet was thought to keep the black powder residue moist and pre-vent it from caking in the bore.
- 5. Blowing through the barrel after firing was done for the same reason as licking the bullet—condensation of the breath caused moisture in the barrel.
- 6. The National Rifle Matches at Camp Perry, Ohio.
- 7. Not always. One of the chief control-ling factors is the type of barrel support. Some rifles shoot low with a very hot barrel.
- 8. At the instant of firing, the bullet will leave the muzzle and, to an observer on the ground, the bullet will travel in the same direction as the plane, at a speed equal to the difference between the plane's speed and the muzzle velocity of the bullet. The bullet would have its regular muzzle velocity in relation to the plane itself. However, it would clear the barrel in any case, for at the instant of combustion, the pistol would be stationary. If the bullet were fired ahead, its speed at the instant of firing would be its muzzle velocity p'us the velocity of the plane.

Note: Your suggestions for questions for this quiz would be welcome.

### POSSIBLES and S **IMPOSSIBLES**

by FRANK J. KAHRS



We got a big kick out of the fiturnout (185 registrations) at the Sea Girt, New Jersey, matches.

The thing that pleased us most wa the large number of uncusance shooters who took part in the vari ous events.

The National Smallbore Rin Matches will be held at the Mour Gilead range in Ohio. This range has been in operation for the years, and we can assure woulder participants that it's one of swellest smallbore layouts in it world. From what we hear around the country, the old Camp Pergang will be at Mt. Gilead if strength, and there'll be plenty a rewcomers who will be competing the strength of the country. newcomers who will be competing for the first time in a Nation Match. The classification sympa-gives everyone a chance. Let's leg-rifle shooting the biggest sporting event in participance in the country

The National Pistol Matches we scheduled for Detroit this you. Pistol shooting has always been ceptionally strong in and aread Detroit. Shooting facilities are in patch.

we just received another reproduced to the semand of these very critishooters with respect to the ammitton and rifle which they depd upon to get the job done in tremely tough competition. At Bayou Rifles Fourth Annual Tenament in Houston, Texas, on All 27th, there were more Reminshold 137 rifles on the line than other make, and there were 55 epcitors registered. This is just other double check on the red Dallas Shoot where the same the occurred and knowing these by and girls of that region quite we can appreciate their good jument in the selection of equipmed Just to bear this out, there was any first place in the Bayou To nament which was produced other than Reminzton ammunity and the unexcelled Model 37 Ramaster. We think we should such things as these along to you the field as an index to what happening about the country.

We do happen to know of a continually using their home rafanaged for practice and training for ex lence in marksmanship. These wo cover a great many individuals we are interested in doing their bit if the advancement of National

"PALMA KLEANBORE," "TARGETMASTER" are Reg. U. S. Pat. Of T-LOKT

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### 19X Possible with Regular "Kleanbore"



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A shooter friend sent us this A shooter friend sent us this target with a note saying: "This target was fired with common Kleanbore cartridges at least five years old. I found this box in the bottom of my gun case and took it out to see what this old ammunition would do."

The result—a neat 200 x 200 with 19X's at 50 yards.

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In the days of black powder, Lesmok powder and corrosive priming, barrel cleaning was a necessary evil. It was a lot of fuss and bother, but woe betide the man who neglected to clean his rifle barrel!

#### Not good for rifle

Although it had to be donebarrel cleaning in itself did the rifling of the barrel no goodnor does it now. A thorough barrel cleaning job causes more wear than the rounds you'd shoot in many a match.

Today, with smokeless powder and Kleanbore priming, there's no need to clean the inside of any rifle barrel. "Kleanbore" priming is not only non-corrosive in itself—it deposits a film inside the barrel which prevents rusting or corrosion from other Causes.

#### It's all unnecessary!

Those target shooters who use Lesmok cartridges are subjected to smelly and irritating gases, as are nearby shooters on the firing line with them.

It's all unnecessary! Up at Bridgeport there is an autoloading rifle through which over half a million rounds of Kleanbore .22's have been fired. During the entire test, this rifle was never cleaned. There's not a sign of rust or corrosion in that barrel!

### THE TRUTH ABOUT | Feed it Targetmaster or Palma Kleanbore and watch it perform!

Some rifles will shoot well with one ammunition and not so well with another. The possible reasons for these idiosyncrasies are so many, so varied, and so technical that we couldn't even begin to list them here. But it's a rare specimen indeed that won't perform to perfection with one or the other of Remington's match loads, Police Targetmaster or Palma Kleanbore.

#### Over 21/4 million test rounds

As you know, these cartridges are subjected to continual testing during manufacture. So thorough is the testing of all Remington .22's that over 21/4 million rounds are fired in various tests every year! In one of these tests (the casualty test),

cartridges are fired in all standard makes and types of

In our accuracy tests on match .22's, we also use all of the usual types of match rifles. From these tests, as well as field reports from all corners of the country, we know that Palma Kleanbore and Targetmaster .22's are as "digestible" a diet for target guns as we've ever put out! And do they group!





#### Continuing research

Remington ballistics experts, in their continual efforts for ever greater uniformity and accuracy, have devised a series of tests for .22 cartridges which has resulted in constant improvements in both regular and match ammunition year after

Powder is subjected to the most thorough microchemical analysis. Priming tests are made constantly—the blow of a 2-ounce weight dropped from a predetermined height must fire any Remington primer. bullet is tested for roundness, length, shape, density and bal-ance. The crimp is carefully checked to make sure that the pounds of pull necessary to pull the crimped bullet out of the case remains constant.

The new Remington-developed Chronoscope enables us to study velocity more carefully than ever before-holding it within extremely close tolerances.

What's this all add up to? The best match ammunition on the market! Get some and try it.



Pat. Of -LOKT" is a trademark of Remington Arms Co., Inc., Bridgeport, Conn.

# OVER THE NEWS DESK

### NEW BOOKS:

### "THE ART OF HANDGUN SHOOTING"

By CHARLES ASKINS, JR.

In keeping with other publications of A. S. Barnes and Company this one is well presented, and an exceptionally readable type face has been used. While the advice is unquestionably sound for the man who wants to excel as a tournament shot, it is doubtful if this book will cause anyone to choose pistol or revolver shooting as a pleasurable hobby because throughout its pages the impression is given that handgun shooting is something that must be worked at constantly with everything from hand exercises in the morning to dry practice in the evening. Even so the instruction material is interestingly written. Askins has of course drawn his material from a wealth of experience, for he has competed in hundreds of tournaments, some of which are attested to by full page photographs of the author and his awards.

A small portion of one chapter is devoted to a desirable subject not commonly found in books of this type—the subject is good sportsmanship. An entire book could be written on this topic and it is too bad that the subject is dismissed with a few para-

graphs in this book.

Another departure from the usual is a chapter on "swapping" guns. Many points are enumerated which should be watched out for by the beginner. However, "a little knowledge is a dangerous thing," and con-sultation with a good gunsmith or an ex-perienced shooter is the best advice to the tyro considering the acquisition of a secondhand firearm.

While little that is new to the old-timer may be discovered in this book the man or woman just breaking into the sport will certainly profit from the advice and suggestions of an author who was formerly one of the outstanding tournament shots with the re-

volver and .22 automatic.—F. L. Wyman.

Published by A. S. Barnes and Company,
67 West 44 Street, New York. \$2.50; buckram binding; 219 pages; illustrated.

#### **NEW RECORDS**

Records of all kinds continue to be shattered as this target-shooting game goes into another year of increasing popularity. Along with new attendance records at registered tournaments there always seems to be a skyward trend in scores for national records. Some of the new high marks set up over the past few months are listed here for comparison with the records carried in the first-ofyear publication on classifications.

#### Pistol

Gallery, 50 ft.

Malter Walsh, at Wash., D. C.—288.

4-Man Team, .22-caliber three-stage course, Wash., D. C., Metropolitan Police, at

Wash.-1112.

Outdoors

Individual, .45 Nat'l Match course, Thurman Barrier, USMC, at Coral Gables, Fla.— 292.

4-Man Team, .22-caliber Nat'l Match Course, U. S. Treasury Team, at Coral Gables, Fla -1172

Center-Fire Camp Perry Course, U. S. Treasury, at Coral Gables—1183. Center-Fire Nat'l Match Course, U. S. Treasury, at Coral Gables-1156. 45-Caliber Nat'l Match Course, Detroit Police, at Coral Gables-1140.

Rife

Gallery, 50 ft.

Individual, 40 shots prone, Metallic Sights, Bernard McCarthy, at Chicago—399. 40 shots prone, Any Sights, Willis Ken-

yon, at Waterloo, Iowa--400. 20 shots offhand, Metallic Sights, Wallace Wilkens, at Ellis, Kan.—183.

20 shots offhand, Any Sights, L. A. Wilkens, at Cleveland, O .- 192.

4-Man Team, Four Position, Metallic Sights, Minneapolis Rifle Team, at Minneapolis-

Four Position, Any Sights, Northwestern Rifle Club at Minneapolis—1529.

Gallery, 100 yds.

Individual, 40 shots prone, Metallic Sights, W. B. Woodring at Chicago—400-32X. 4-Man Team, 20 shots prone, Any Sights, Neville Island Gun Club at Cleveland,

#### N. R. A. DIRECTORS CALLED TO SERVICE

Two more of our official N. R. A. family have gone into active service this past month. Newest addition to the N. R. A. Executive Council, Lt. Col. L. W. T. Waller, Jr., who retired from the presidency of the N. R. A. only last February after a two-year term, was called to the active list of the U.S. Marine Corps in an important post here in Washington as Inspector of Target Practice, He replaces N. R. A. Executive Committee Member, Lt. Col. M. A. Edson, who now joins the Fleet Marine Force.

Dr. Emmett Swanson of Minneapolis, N. R. A. Executive Committee and known member of several U.S. teams in their travels to England and the continent, leaves his practice to take up active duty at the Ouantico, Va., Marine Corps base.

#### WARNING: LOCAL ORDINANCE

The National Fire Protection Association has drafted a proposed uniform explosives ordinance for adoption by local City Councils. In its original form this would have practically outlawed possession of smokeless powder by reloaders. Through the timely intervention of N. R. A. member H. W. Geyer of Los Angeles, himself a member of the N. F. P. A., the suggested ordinance was revised and wording suggested by the N. R. A. was incorporated to safeguard the use of smokeless powders and primers by home reloaders. Unfortunately, however, the bill in its original form was widely circulated, and in at least one city has been so presented for adoption.

Be on the lookout for this ordinance. We suggest that you contact the Chairman of your local City Council and explain the situation. If it is proposed for your city, request the opportunity of looking it over before consideration. Be sure it is the revised bill, and not in the form originally circulated in the "Quarterly of the N. F. P. A." for April,



#### TIMED FIRE with Bill Shadel

• That Scotch farmer, David McLean, we've all read about "capturing" Rudolph Hess with a pitchfork on the occasion of Hess' spec-tacular flight from Germany, now swaps his pitchfork for a rifle. The American Com-mittee for Defense of British Homes announces their Georgia chairman, Chester Brooks, contributed a Lee-Enfield and through the courtesy of British Gov't, representatives here it was placed aboard a bomber and flown to England from a Canadian airport. Maybe you've wondered what the contributions have amounted to: So far, 3.937 guns (rifles and shotguns) 5.120 pistols; 2,417 binoculars; 427,000 rounds of ammunition; 12,672 steel helmets, 332 stop-watches.

• The War Department's Adjutant General's office asks us to remind you of a national slogan for the duration of the emergency-"KEEP 'EM FLYING." You'll be seeing this often, as it's intended as an expression of "felicity, high morale, or as a toast," and to be used by cooperating newspapers, magazines and in other printed matter. The Adjutant's reminder says, "in a manner similar to the use of the old N. R. A. Blue Eagle." Re-

· "News of Norway:" The story goes that a Norwegian was picked up by the Gestapo, reason—he was walking about the streets muttering to himself. Asked if he was expressing anti-German thoughts he replied, Oh no, you see I'm out of work and I was only telling myself that I'd much rather work for ten thousand Germans than for one Englishman." Mollified, the questioners said that was a different story and would help him find a job. What was his profession? "Oh," came the answer, "I'm a grave-digger."

· Hot Brass: Competitor number 13, cpl. W. Skuce of the Royal Canadian Mounties was firing next to John Turnbull on a Toronto pistol range. Beyond Turnbull was Constable James McLaughlin of Windsor, Turnbull is said to have ejected a "hot shell" from his automatic, said "hot shell" hitting competitor 13, Skuce, on the neck. In turn, Turnbull was hit as was also Constable McLaughlinnot by hot brass but by lot lead from the revolver of Skuce. We note the police report calls it a freak accident and says "Skuce was subjected to an involuntary reflex action by which the muscles of his right arm tightened and pulled the trigger of his revolver." helps clear up motives, at least.

• Golden age, 27: Did you know you were slated to pull your most outstanding per-formances as a rifle and pistol shooter, between the ages twenty-five to thirty? the the ages twenty-nve to thirty? Well, that's what a survey of Harvey Lehman, Ohio University on "The Most Proficient Years at Sports and Games" suggests. The average age of the 307 N. R. A. shooters involved in the 630 "outstanding performances" under consideration was thirty-two, but the age 27 is chalked up as the year of maximum proficiency. Incidentally, along with the marksmanship curve on the age chart, runs a practically identical curve indicating bio-logical fecundity—not of these rifle shooters. but of the nation in general. Anyway, that's what the chart says. Now take pro baseball: Their maximum proficiency (in baseball) is 28; Cornhuskers (the sport, not the state) best age is 26-30; pro ice hockey, 24-25; golf pros, 30-34.

#### N. R. A. LEAGUE FINALS

More than 6,500 individual competitors, making up 528 rifle and pistol teams fired away in the second annual N. R. A. Gallery League series this year, and when the smoke had cleared at the end of the Championship Match last month the Belgrade (Mont.) Rifle Club was the new National Gallery Rifle Champion, and the Washington, (D. C.) Pistol Club had copped the handgun crown.

That record-breaking field composed 65 well-scattered leagues throughout the country, all of which sent their respective champions into the State and National finals.

The Belgrade quartet fired a 1,552 x 1,600 team score to win the Montana State and National trophies. Nationally, it won by a six-point margin over Gresham (Orc.) Rifle Club, which had a 1,546 result. The Elmira (N. Y.) Rifle Club was third with 1,539 points.

Seventeen other national pistol finalists chased hoplessly after the Washington Pistol Club aggregation which, led by Walter Walsh, ran up a team score of 1,103 x 1,200 points. Walsh turned in a fine 292 count himself which helped put his team above the Capital Pistol Club, of Raymond, Wash.. the West Coast quartet tallied with 1,098, five points behind first place, but well ahead of the third place score of 1,083, fired by the Chicago Rifle Club.

Along with the firing of the National Championships by the league-winning teams, a state title was decided in those states having three or more leagues. While the limitations of state residence cut down on the second phase of the pyramid—local league to State to National—another year is expected to show many more state championship shoot-offs.

The following are the state rifle winners: California—Capital City Rifle Club, "Blue Team" (Sacramento), 1489; Iowa—Des Moines Rifle Team No. 1, 1506; MINNESOTA—University Rifle Team (Minneapolis), 1523; MONTANA—Belgrade, 1552; New York—Elmira Rifle and Pistol Club, 1539; OHIO—Medina Rifle Club, 1518; PENNSYLVANIA—Oil City Rifle Club, 1524.

The State Pistol winners: Illinois—Chicago Rifle Club, 1083; Iowa—Cedar Falls No. 1, 1082; Minnesota—Warroad Pistol Club, 1061.

The league series, by far the largest ever conducted on a nation-wide basis, brings to the indoor season a network of competition long anticipated and through its enthusiastic reception this past year will eventually reach proportions paralleling the outdoor system of registered competition. Team and league managers are asked to lay preliminary plans along similar lines for the coming fall indoor season and stand by for the programs to be issued from the N. R. A. Office the early part of September.

### TOURNAMENT REVIEWS

#### SOUTHERN CALIFORNIA ,30-CALIBER MATCHES

Out of the first 10 in only one event, Sgt. E. V. Seeser, of the San Diego Marines, took high gun honors in the West Coast Rifle Club's Southern California Championship shoot which wound up at the Marine range May 17 and 18.

It was the first .30-caliber match that the National Rifle Association has recognized and registered during its 71-year history, and it was appropriate that a former national champion should turn in the outstanding performance.

Sergeant Seeser, who captured the title two years ago at Camp Perry, failed to finish among the medal winners in only one match, the 600-yard event, but he counteracted that momentary let-down by winning the 1000-yard match, slow fire aggregate and total grand aggregate. He was fifth in the 200-yard offhand, ninth in the 200-yard rapid-fire, tenth in the 300-yard rapid-fire, and sixth in the rapid-fire aggregate.

Two civilians, Dr. Phillip Philbrook, of the Camarillo Rifle Club of Oxnard, and Victor Massie, of the Burbank Pistol and Rifle Club, offered Sergeant Seeser his most serious competition in the grand total aggregate, trailing him in that order. Fourth place went to the San Diego marksman, Ralph Steinhoff.

The Marines accounted for first and second places in the team match, and the West Coast Rifle Club was third, while in the special Wimbledon match, Sergeant Seeser was best with glass sight, and Sgt. J. D. Eilloughby led the parade in the iron sight division.

#### TARG-O-TABS

Since last months' mention of these in the Dope Bag the NRA staff members have had a chance to try them out during target practice and we agree with the F.B.I. We like them too.

For the individual shooter, pasting his own target, they are much the handiest type of paster yet put on the market and the water proofing feature saves your temper after a rainy spell and also will make a saving in the pocketbook over a year's time. Their size makes them practical for every size bullet hole from .22 to .45 caliber.

Winners in the 2nd Annual N.R.A. Gallery League series: LEFT: The Washington, D. C., Pistol Club team; RIGHT: The eight man team that represented Belgrade, Montana

### NORTH CAROLINA SMALL-BORE CHAMPIONSHIPS

Sixty-four competitors attended to make the 1941 North Carolina Small-Bore Championships at Gastonia on May 9 and 10 the largest ever held. The shoot was pretty much Willet Kuhn, who took the Kannapolis Club trophy aggregate, the North Carolina Championship aggregate, the Bausch & Lomb trophy for the any-sight Dewar, and finally the Gastonia Club trophy for the 50-yard metallic-sight match, with the only possible since the inauguration of these matches in 1936.

In the 50-meter two-man team A. Philbrick and G. T. Strailman outranked Willet Kuhn and N. J. Boger, each team having 388. Mrs. Fred Molt took the 50meter any-sight match with a 394 to nose out young John Symmes by 1 point. In the Bausch & Lomb match Willet Kuhn began to "click" with a 393. The 100-yard anysight match again demonstrated that the women ask no favors from the men when Mrs. Symmes won with a score of 390, She must have given her son some good pointers about wind doping during the night because young John Symmes took the 50meter metallic-sight match with a score of The Dewar was won by Henry Reid. The W. H. Oakey Match, 10 shots at 50 and 100 yards, no sighters or warmers, was won with a 194 by A. W. Philbrick. The Marksman class aggregate was won by J. E. Simmons

#### SMALL BORE AT SEA GIRT

The almost 200 riflemen who registered for the small bore championship matches of the Association of New Jersey Rifle and Pistol Clubs enjoyed one of the best periods this famous range has provided. There was no fog or rain during the scheduled time of the matches and even the cease firing siren was still thruout the Decoration Day weekend.

Dave Carlson opened the tournament by taking the first match, 50 yards on the mothball (bless it), with a 392½, ranking Fred Kuhn's score on the last bull. In the two-man team, 50 meters with metallic sights, Ranse Triggs and Bill Schweitzer edged out Harry and Frank Frohm by 10 x's, having 396 27x. Johnnie Borokhovich of Brooklyn Edison took over the 50 meter individual. 396 21x, with B. P. Emmerich's 395 14x taking the American Legion medal for this same match.

C. N. German's 399 29x nosed out R. J. Wibbelt by 2x for the Dewar medal on the decimal target and Ernie Pade took the 100 yard individual to finish the first day's competition.

Saturday, German lacked 4 x's of R. O. Willman's 399 30x for the 50 meter individual





win. Bill Schweitzer and John Kolbus fired the first possibles of the tournament in the 50 yard metallic. Schweitzer's 30x however, gave him first by 6 x. Fred Kuhn took the Paddy O'Hare Dewar, 399 27x and Triggs secured another first for his 397 22x in the 100 yard metallic. Teamed with J. C. Lippencott, Triggs wound up the day with a possible to take the two man team 100 yard match, 399 27x, with Jim Lacy and Ernie Pade second.

Sunday was a gray day, after the night's rain, so Jack Lacy took the Governor Hoffman moth ball Dewar with a 393 and Ranse Triggs got the Governor Edison Trophy with a 400 28x, to clinch the metallic sight aggre-

gate with his total of 1987 117x.

In the junior ranks W. Heyer of Red Bank fired a 200 7x to hold the Hearst Trophy for one year and P. MacDonald with a 194 7x lead the sub juniors with Miss Audrey Bockman's 192 7x placing second.

In the aggregates Bill Schweitzer took two firsts, the any sight with 1582 72x and the Grand Aggregate with a 3565 176x. Jack Lacy and R. D. Triggs brought up the other two places with Francis O'Hare taking the first expert, R. Kissam the top Sharpshooter and Miss Audrey Bockman leading the Marksmen. The Junior Aggregate went to Al Lyons, his 988 43x taking the P. J. O'Hare trophy, with J. Holle second and Walter Hayer third.

As for the past three years, Troops 11 and 33 of the Milltown (N. J.) Boy Scouts provided the alert, smooth-functioning range detail.—ED. MOORE.

### TENNESSEE STATE SMALL-BORE CHAMPIONSHIP

A registered Class B small-bore tournament for the State of Tennessee Championship was held at Knoxville, Tennessee, on the old Camp Sevier Range on May 24 and 25. This was the first registered small-bore tournament to be held in Tennessee, and drew a total of 55 entries.

Alice Molt of Asheville, North Carolina, rated in 1941 as an Expert, won the state title by annexing the grand aggregate with a score of 3162, despite the presence of her husband Fred Molt, Willet Kuhn of Remington, and several others in the Master class. Willet Kuhn was forced to withdraw from the first day's matches, but recovered sufficiently by next day to annex the any-sight aggregate. Catherine C. Symmes of Atlanta and her son John were consistent medal winners during the first day's matches, but were unfortunately called home and did not compete in the Sunday matches.

Of the local competitors, Edward Hinsdale

Of the local competitors, Edward Hinsdale made the best showing by finishing third in the aggregate and winning the high expert medal in several events. Guy Isenberg of Kingsport proved he was an excellent smallbore shot by annexing the Dewar any-sights match and the high-expert medal in the any-sights aggregate. Probably the most surprised man in the matches was Bob Burch of Knoxville, who with no previous experience in an outdoor match and using a borrowed gun, won the Marksman medals in the 100-yard and Dewar any-sight matches with very creditable scores.

#### MINNESOTA INDOOR RIFLE

On April 6 the Minnesota State Rifle and Revolver Association was host to ninety shooters from Minnesota and neighboring states, who convened at the University of Minnesota Rifle Range for the State Gallery Championships. This shoot brought together all the top notch shooters of this section and was the most successful state championship match ever held.

First place honors went to a former mainstay of Minnesota's University team, Bob K. Sandager, who captured the Class A aggregate with a 587 score over the 20 shot prone, 20 shot sitting, 10 shot kneeling, and 10 shot standing course. George Monson of Hibbing took second with 585 and Dr. Emmet O. Swanson (last year's winner) went back to third with 583. The Class B aggregate went to another Minneapolis shooter, E. O. Franzen, with another 583 score. Maurice Hoveland of Austin with a 567 score took honors in Class C.

In previous years the four-man team matches have always brought about a regular cat and dog fight between the Twin City teams with the Minneapolis Rifle Club and University teams consistent winners in other years. This year the strong Northwestern Rifle Club Team composed of Mr. and Mrs. John Cole, C. T. Jacobson, and Albert Brevig came through with a score of 1529 to lead the field while the Minneapolis Rifle Club scored 1527 for second place and a strong Austin team took third place with 1517 to put the University of Minnesota team (last year's winners) in fourth place with 1515.—O. V. TOURSON.

#### VERMONT GALLERY RIFLE

Arthur Pruneau, Barre, Vermont, successfully defended his title of Vermont State Gallery Champion at Vermont's fourth annual gallery rifle tournament, which was fired at the Norwich Armory in Northfield on April 26 and 27. The Champion had no easy time of it though, for his club-mate, Levi Taft, was crowding him all the way and finished the championship aggregate just one point behind.

Taft traded places with Pruneau in the two-position championship by just the margin that he had over him in winning the offhand match, 176 to 173, both having 199's prone. Pruneau's four point lead over Taft in the sitting-kneeling match was what kept him Champion for the second successive year.

Louis Crivellaro and Louis C. Taft, Jr., both of Barre, were the steady performers in its Sharpshooter Class with Crivellaro topping his class in the four-position aggregate and taking second Sharpshooter place in the two-position aggregate. Taft was second in his class in the four-position individual match. Louis B. Tims, of Montpelier, made a cleansweep of it in Marksman Class, topping in both aggregates, and the four-position individual.

The Barre Rifle and Pistol Club's "A" team had an easy win in the five-man team match with their 1379. The Norwich University team had a nip-and-tuck battle to take the "B" class crown from Barre "B" team,

versity team had a hip-and-tuck battle to take the "B" class crown from Barre "B" team, 1290 to 1289. Arthur Pruneau teamed with Claude Partridge for an easy win in the four-position

sight offhand doubles event. Harry Naylor and Edgar Allen took the iron sight, offhand doubles event and Louis Tims teamed with two different men to top "B" class in both the four-position and iron sight offhand doubles. "B" class was limited to team with both members in Marksman class. Seventy-two shooters took part in this finale of the gallery rifle season in Vermont.—P. H. TEACHOUT.

doubles and with Levi Taft to take the any

#### MINNESOTA INDOOR PISTOL

The early morning of April 20 brought rain and snow that had the makings of another Minnesota blizzard, but in spite of this, 48 pistol shooters from Iowa, Wisconsin, and Minnesota stormed the University of Minesota Armory to pit their six-shooters against the other fellows in an attempt to bring home enough hardware to convince the home folks that they really know how to fan their triggers.

This event, the State Championship Indoor Pistol Match, went to John Glynn of Robinsdale with a grand aggregate score of 831. George Paine of St. Paul, just back from his Florida trip, walked off with second place with 829. Ralph Wild of Cedar Falls, Iowa, after an all night drive, grabbed third place with 827. Class B honors went to Gilbert Lee of Minneapolis with 811. An 807 gave Hugh Butler of Minneapolis second. First place in Class C—Harry Levi of Minneapolis with 782. Maurice Frellsen of Minneapolis topped the rest of the Class C shooters with 755.

The Two-Man Team Match showed a number of well matched teams, but the 538 turned in by Hugh Butler and Glenn Phillips of the First National Bank Team gave them top place. The Doctor and Dentist combination of A. C. Skjald and E. O. Swanson in second place with 536; 535 gave George Paine and C. T. Peterson third place; and young Robert McQueen with 266 and his dad, I. G. McQueen, with 263 gave this Ridgeway, Iowa, team fourth place with 529.

Phillips, Glynn, Pearson and Butler, the First National Bank hot shots, captured the Three-Stage Gallery Four-Man Team Match with a 1066 score. St. Paul Rifle and Pistol Club, 1065. The Cedar Falls boys took third with 1053. Northwestern Gun Club, Duluth, 1023. Minneapolis Pistol Club, 1011. Virginia Rifle and Pistol Club, 988. Minneapolis Postoffice, 969. St. Paul #2, 944.

The four entries in the slow-fire four-man team match finished in the following order: Ccdar Falls, 684; St. Paul, 675; First National Bank, 669: Minneapolis Pistol Club, 655.—O. V. JOHNSON.

#### VERMONT GALLERY PISTOL

Lt. John H. Sanguinette, 258th Field Artillery, Fort Ethan Allen, Vermont, won the state championship aggregate match at the Vermont State Gallery Pistol Tournament at Northfield on April 5 and 6, 1941, by outranking Hartley W. Brooks, of Kittery, Maine, on a tie score of 272 and took high Expert Class medal in the rapid-fire match with a 184 for second high score for the match. Brooks won the timed-fire match with a 194, took high Sharpshooter Class medal in the slow-fire match with a 172 and teamed with A. Webber, also of Kittery, to win the doubled match well ahead of the rest of the field, Wilbor Flagg, U. S. Border Patrol, Newport, Vermont, took the medal for high Vermont resident with a 792, third high for the match. Shooting in Sharpshooter Class, Flagg only topped his Class in one match making up the aggregate when he had second high of the match, a 189, in the timed-fire match.

#### PISTOL AT PHOENIX

Forty-three competitors took part in the ten events making up the Arizona State Pistol Matches, fired at Phoenix on May 18th. A. L. Meloche got into his stride early in the game by annexing the any caliber police course event with a 298. From then on it was nip and tuck between Meloche, Norman Adair and Lee Echols for top honors of the Three of the six individual tournament. Three of the six individual matches fell to Meloche, with one each to Adair, Echols and James Newhall, who took the center-fire police course. By the time aggregate totals were due, there was little doubt of Meloche's leadership: 864, a new national record for three times over the course, .22, center-fire and .45. Right behind him were Echols and Adair. Not satisfied, Echols and Meloche teamed up for another new national mark, 570 for the .45 caliber police course doubles. The Phoenix Pistol Club four triumphed in the .22 team affair and, with center-fire guns, repeated their win, both times nosing out the West Coast Rifle Club's squad.

#### CLASS C TOURNAMENTS

Albert Lea Small Bore Tournament: June 1st was women's day on the Albert Lea range, with Mrs. John Cole of Minneapolis taking the aggregate away from 56 competing riflers in the 6th firing of this yearly event. This is the second consecutive time Mrs. Cole has taken the Aggregate prize at Albert Lea. C. V. Jones and P. J. Edquist were second and third, carding 1585 and 1583 to Mrs. Cole's 1589. Individual matches on the program went to Jones, Mrs. Cole, John Moschkau and Frank Miller.

"Little World's Championship" at Madison: Iowa and Illinois shooters dominated the winners at Madison on April 27th, with Thimmesch of the Iowa State Police leading the combined Master-Expert Class, though dropping the aggregate to R. C. Wild of Cedar Falls. S. J. Iverson of Chicago took top honors in the Sharpshooter Class and among the Marksmen, top honors went to Herman Lacey, Chicago. Sixty-nine competitors took part in the matches.

Northern California Small Bore: Sam Lear of Vallejo made an almost clean sweep of the honors at Yreka, California, during the firing of the Southern California Small Bore Matches on May 4th. Lear swept every event save one, turning in an aggregate total of 1593x1600. In the only match Lear missed, 50 yards any sights, Orin A. Deter of Montague tallied a 399 and 29 X's to pace the field. In the Sharpshooter division, Gordon Jacobs of Hornbrook took high award, and among the Marksmen. Albert Smith of Grant's Pass came into first position.

Grant's Pass came into first position.

Flint Rifle Pistol Tournaments: Range facilities were overtaxed when 96 competitors from three states showed up for the Flint (Michigan) Pistol Tournament on May 11th. Ed Schneck, Dearborn, started things by taking the .22 slow-fire, and the balance of the day's events fell in quick succession to J. Porter, Detroit, Chet Easton, Jackson, Joe Nickoden, Allen Park and Charles Logie of Grand Rapids. Schnek's 858 tally was good for top place in the .22 aggregate, with Detroit's Driver snaring Master award in the event. The center-fire twilight match went to Robert Deyo's 291.

On the 25th, 107 rifle shooters turned up,

On the 25th, 107 rifle shooters turned up, making another record of 385 entries for the five event card. R. S. Brummit of Pontiac won the 50 yard metallic, and the 50 yard any event went to Ypsilanti's Buchanan. G. Bodak took the Dewar metallic, William Bankov the 100 yard any, and the final match of the program, Dewar any, fell to a 400-31X scored despite gathering darkness by Leonard Skog of Melvindale.

Iowa Restricted Small Bore: C. M. Linfor of Des Moines and Frank Dewitt of Marshalltown captured the featured Dewar titles in the restricted small bore match staged by the Iowa State Rifle Association on the Camp Dodge range, May 25th. Linfor, a Marksman, won the metallic sight Dewar with a 390 total, scoring a 192 at 100-yards. Dewitt, a Marshalltown marksman, won the Dewar any event with a 394. More than fifty contestants, limited to those below Expert class, competed.

Portland Rifle Club Tournament: Covering a mere 600 miles for the round trip, Ivan K. Waddel of Medford, Oregon captured grand aggregate honors with a score of 1394 of a possible 1400, and felt well repaid, when he competed in the Portland (Oregon) Rifle Club's 3rd Annual small bore event. Held May 11th, the event attracted 68 shooters to the small bore section of the Clackamas range, with representatives from scattered areas in Oregon and Southern Washington making up the field. Clifford Fosberg upheld the laurels of the host city by firing 1391 for a close second in the aggregate.



Gen. Thomas Holcomb, Commandant of the Marine Corps, fires the first shot on the Corp's new \$65,000 range at La Jolla. For a story of the first match held on the new West Coast range, turn to page 31, col. 2

#### NON-REGISTERED EVENTS

Pistol Matches at Reno: Lt. Garold Curo, last year's Far West Regional winner, dominated the first day of the Reno Pistol Association's shoot, staged over Memorial Day week-end, taking the .22 aggregate and having enough to spare to give him the grand aggregate as well. Ken Wilson of the U. S. Treasury Team took the lead on the second day, winning the center-fire aggregate and Camp Perry Course event and placing second to Curo in the grand aggregate. Betty Cline was the outstanding woman shooter, giving the men some anxious moments in competition for Class A medals in the aggregate. In the team events the United Revolver Club nosed out the Tamalpais squad with the .22, but the Tamalpais crew got their revenge by taking the center-fire team event the following day.

Old Trails Rifle and Pistol Matches: Gene Eller took three of the five first prizes, including the aggregate in the rifle events of the Old Trails Indoor Matches staged in Richmond, Indiana, on the 30th of March, with Rinck of West Alexandria and Bowie of Muncie, bagging one each. In the pistol events C. R. Atkinson of Fort Wayne snared two of the first prizes with J. Y. Little of Richmond taking the remaining one. Phil Roettinger of Cincinnati won two second place medals and a couple of thirds. In all, 40 shooters registered, with a total of 120 entries in the matches.

Oregon Gun Club Tournament: Guy D. Jones of Portland was the big boom of rifle competition on March 16th, when the Oregon Gun Club staged its annual gallery match competition, with 69 competitors from 15 cities firing. Jones won the grand aggregate with 586-the fourth time this season he has walked off with top indoor laurels this season. Jones not only topped the entire competition, but posted the best prone and offhand score recorded in the Northwest this year-an unusually high 197. Only one Master first place failed to find its way into Jones' pocket the prone event, which fell to a possible turned in by another of the Jones Boys, Harold, of Astoria. In this event, seven gunners were tied with possibles, fifty additional shots being necessary to break the

Northern Utah Rifle League: To wind up their first year's schedule of shoulder-to-shoulder competition, the Logan Rifle and Pistol Club managed a win in the Northern Utah Rifle League matches, after winning nine matches of the ten-match schedule. Both Logan and the team representing Col-

linston turned in 9-1 tallies, but in shooting off the tie, Logan came in victor. Others firing in the league were Brigham, 5-5; Tremonten, 5-5; Garland, 1-9; Fielding, 1-9. The course of fire was 5 shots per man in each of four positions, with a 2 point deduction for scopes.

Burbank Junior Interclub Matches: Young E. Ritchie, Fairfax High School student, took top honors in the Burbank (Cal.) Junior Interclub matches staged there on April 26th. A 360 for the four position course gave him first place over individuals from all of the eight teams entered. In the team line-up, the Ontario S.A.L. squad went into an early lead in the prone start-off, and managed to stay in front until the final off-hand stage, when the Fairfax No. 1 team of Burbank forged ahead. Final standings were Fairfax, 1691; Ontario, 1670; Jr. Burbank Club, 1667.

El Paso Pistol Matches: Bill Sullivan of El Paso made all but a clean sweep of the El Paso Pistol Club's monthly match, staged April 20th, when he won three of the four individual events, and topped the field in the aggregate. The one match Bill couldn't corral went to Howard Peters. Expert medals fell to Jesus Andrade, C. A. Arredondo, Roy Smith, and O. B. Pierce, with Andrade taking top expert rating in the aggregate. Sharpshooter and Marksman awards in the aggregate went to E. T. Edwards and Joe Farr.

Viroqua-Westby Indoor: On March 9th the Viroqua-Westby (Wisc.) Rifle Club held its annual indoor rifle tourney in the new gynasium at Westby. The course is the same as the outdoor Dewar except that regular 50 and 75 foot targets are used at 75 and 100 feet. Carl Frank, Rochester, Minnesota, took the lion's share by turning in high score in both the iron sight event and the aggregate. Harry Gerke took first in the any sight match. Other honors were well distributed among the other contestants.

Wyoming Gallery Championships: Sponsored by the Douglas Rifle and Pistol Club. these events attracted 49 competitors representing four states, and several hundred en-Homer S. Wilhelm of Pryor, Montana, and H. O. Peterson of Rawlins battled it out for the aggregate first, Wilhelm making a 771 x 800 total to nose Peterson out of the running. The same pair went on to take the two-man event. Scottsbluff, Nebraska, beat out the United Airlines Rifle Club of Cheyenne for the gold medals in the three position five-man team match. The program was closed in worthy fashion by the aforementioned Peterson, who proceeded to beat out the scope shooters with iron sights in the 20 shot offhand event, for possession of the beautiful Wyoming Rifle Association Gallery Championship Cup.

Roslyn (N. Y.) Indoor Pistol: The matches were staged February 22nd on the indoor range of the Roslyn Rifle and Pistol Club on Long Island. Among the individuals, Pat O'Neill of the N. Y. City Police proved his right to be called one of the outstanding shots of the East by annexing both individual events in the face of big time competition, supplied by a field of over 80 shooters. In the team events, the squad of the sponsoring club came into first position in both the .22 caliber four man and the .38 caliber team event.

Beverly (Mass.) Gallery Tourney: Top flight competition was present in full measure at the firing of the annual Beverly Gallery Matches, staged February 22nd and 23rd, as evidenced by the high scores necessary to take home any of the first place awards. It took twelve possibles to win the prone event

for John Crowley of Concord, and second place fell to Chet Elroy's 11. A. W. Skoog of Keane turned in offhand scores of 96, 96 and 95 to snare the standing match, and Louis M. Keene recorded three 100's to take the handicap event. The Keene (N. H.) Rifle Club's squad won the team event with 917, followed by the Piscataqua team of Portsmouth, N. H.

St. John's Intercollegiates: New York University's riflemen won the team title, set a new record for the event and had one of its members finish on top for individual honors in the annual St. John's invitation intercollegiate shoot fired March 15th on the range of the Metropolitan Rod and Gun Club in Brooklyn. The score of the top five Violet marksmen added up to 906 points, one ahead of the best previous total. Gilbert Shurman was high gun among the representatives of nine metropolitan district colleges. The N. Y. U. sophomore turned in the best score of his shooting career when he recorded a 186.

N. Y. Metropolitan Gallery Championships: Due to very poor weather conditions over the week-end, there were only some threescore shooters on the firing line for the Metropolitan Gallery Championships staged April 5th and 6th. Steinberger topped the field in the four position event with 192, and in the offhand match Davidson was high with 184. The two man team of Davidson and Stephan annexed a pair of silver medals for first place, and Balestrieri came out ahead in the Junior two-position event with 184. Arthur Jackson scored a 375 total for the aggregate medal, with Davidson second with

California Outing Show Rifle Matches: Milford P. Little of Inglewood won the small bore aggregate of the Call of the Open Road and Annual Outing Show matches staged April 14th to 20th on the range of the Automobile Club of Southern California. His four night's score of 786, fired on the Expert target, took the grand aggregate over all comers. B. M. Fuhrman of the Burbank Club scored the same number of points but was Creedmored to second. Mrs. Ruth Davis of the Burbank Club was the leading woman contender, scoring 783 for fifth place. 200-10X score won the Junior division individual for Phil Melzer, Pasadena Junior College. The junior doubles went to Ruckard Stoddard and Scott Stoddard of Santa Monica for their 394-21X score. Nearly half-a-million persons visited the Outing Show, and the rifle tourney attracted over 500 shooters.

Ohio Rifle Team Matches: The feature of the team matches conducted by the Ohio Rifle and Pistol Association on the Olentangy Village Range near Columbus on April 19th and 20th was the N. R. A. league event for the Ohio Championship, which was won by the Medina Rifle Club, scoring 1518. Medina was representing the Summit County League. Zanesville, Central Ohio, was second with 1496. Medina was dethroned in the Ohio Champion team match for the National Guard Trophy, losing by two points to Elyria's 1135. The Ohio League Champion's match was again won by Medina with 1418. The Columbus Rifle and Revolver Club's team of youngsters (all under 21) won the prone metallic event with 799, repeating their win of 1939. The League All-Stars match of ten-man teams was again won by Summit County, with 2823. Ohio scored 7652 in the California match and 1931 in the Wyoming match. Larry Wilkins had high score in both, 399 for the 20 prone and 20 standing California match and 196 in the 10 prone and 10 standing Wyoming event. Scores from the Western states were not available at the close of the Ohio events.

### COMING EVENTS

The four classes of registered tournaments are indicated as follows: AA-National Matches; A-Regional; B-State Championships and large District Matches; C-Local: Unregistered matches are not coded. Classification of competitors for prize awards indicated by code and asterisk-C\*, etc.

#### JULY

#### RIFLE

- 2-6 Maryland (A\*), Eastern Regional Rifle, Camp Ritchie. Tom Davis, 60 Warren Street, New York City.
- Massachusetts, Independence Day Rifle, West Concord. D. J. Hardesty, 12 De Mars Street, Maynard.
- 4-5 South Carolina (B\*), State Rifle, Greenville. L. W. Bolt, 1415 Laurens Road
- 4-6 Florida (C\*), Summer Rifle, Miami. Paul Zazzali, 255 S. W. 31st Road, Miami.
  5-6 Alabama, State .30 Caliber Rifle, Birmingham. J. P. Prince, 1852 Princeton Avenue.
  5-6 Wyoming (A\*), Northwestern Regional Rifle, Cheyenne. A. M. Hoover, 1223 West 31st Street, Chevenne.
- California (C\*), Semana Nautica Rifle, Santa Barbara, George C. Worden, 1224 East Montecito Street.
- 6 Indiana, Annual Kokomo Rifle, Kokomo. Charles McCormack. Simmons Building.
- 6 Oregon (C), Clatsop County Rifle Club, Warrenton. W. R. Rowland, Route No. 1.
  12–13 New York (B\*), N. Y. State & Niagara Frontier Small Bore, Buffalo. Donald B.
- Hilliker, 257 Fayette Avenue, Kenmore. 12-13 Ohio (A\*), North Central Regional & Ohio State Rifle, Mt. Gilead. C. I. Greer, P. O. Box 123, Barberton.
- 12-13 West Virginia (C\*), Fort Boreman Rifle, Parkersburg. R. A. Simpson, 1407 Spring
- 13 California, Bay District Small Bore League Match, Richmond. C. DeWitt, 3701 Lincoln Avenue, Oakland.
- 13 Colorado (C), Southern Division Outdoor Rifle, Canon City. Claud P. Ditto, 822 First Avenue, Monte Vista.
- 13 Illinois (C\*), Summer Rifle, Rockford. S. A. Oren, M. D., 907 Talcott Building.
- 13 Minnesota (C), Lake Region Rifle, Fergus Falls. Arne Arneson.
   13 Pennsylvania (C), Illiana Rifle, Danville. W. I. Bowman, 22 North Hazel St.
   13 Pennsylvania (C\*), Summer Rifle, Galeton. Basil Tuller, Galeton.
- 13 Pennsylvania (C), Allegeny Valley Rifle, West Kittaning. W. E. Forbes, 605 Campbell Ave., New Kensington.
- 13 Wisconsin, Small Bore Rifle, Janesville. John D. Wemstrom.
- 19-20 California (A\*), Far Western Regional Rifle, Richmond. C. DeWitt, 3701 Lincoln Avenue, Oakland.
- 19-20 Kansas (B\*), Sunflower Rifle, Topeka. L. E. Brooks, 1419 Van Buren Street.
- 19-20 New Mexico (C), Summer Rifle, Clovis. J. B. Ledbetter. 19-20 Pennsylvania (B\*), Vandergrift-Carnegie Rifle, Vandergrift. Guy W. France,
- Gravel Bar. 19-20 Wisconsin, State Big Bore Rifle & Civilian Team Tryouts, Camp Douglas. Oliver
- Moody, 5527 North 35th Street, Milwaukee.
- 20 Illinois (C\*), I. S. R. A. Rifle, Fort Sheridan. Thomas Compere, 336 North Wells Street, Chicago,
- 20 Indiana (C), Summer Rifle, Muncie. Fred Shroyer, 222 North College.
   20 Maryland (B\*), State Small Bore, Camp Ritchie. O. Thiessen, 14 Greystone Road, Halethorpe Station, Baltimore.
- 20 Michgian (C\*), Mid-Summer Rifle, Flint. Kenneth Gilman, 311 East Wood Street.
   20 Minnesota (C\*), Annual Arrowhead Rifle, Virginia. Andrew Bradish, Virginia.
   20 Minnesota, Fifth Annual .30 Caliber Matches, Thief River Falls. H. M. Hael, Jr.
- 26-27 Michigan (B\*), State Rifle, Flint. James F. Jones, % General Motors Truck & Coach Company, Pontiac.

  26-27 New York (B\*), Southern Tier Championship, Elmira. Greg Allen, 29 Dininny
- 26-27 Vermont (A\*), Northeastern Reg'onal & Vermont State Rifle, Northfield. Louis
- Taft, 41 Fortney Place, Barre
- 27 California (C\*), Tri-League Rifle, Marysville. F. E. Smith, 1311 Lemon Street. 27 Illinois (C\*), Small Bore Rifle, Deerfield. George Postels. 2 North Sheridan Road, Highland Park
- 27 Pennsylvania (C), York Rifle, York. R. O. Willman, Mount Wolf. 27 Wisconsin (C\*), Summer Rifle, Viroqua-Westby. Henry A. Nerison, Westby.

- 2-6 Maryland (A\*), Eastern Regional Pistol, Camp Ritchie. Tom Davis, 60 Warren
- Street, New York City.
  4-6 Massachusetts (A\*), North Eastern Regional Pistol, Springfield. E. F. Bridgman, 76 Pomona, Springfield.
- 6 Florida (C\*), Fourth of July Pistol, Fort Lauderdale. A. T. Kelly, Jr., P. O. Box 43, Coral Gables.
- 6 Ohio (C\*), Ohio Valley Pistol, Chillicothe. Wilby F. Anderson, Route No. 1.
  12–13 New York (B\*), Long Island Pistol, Roslyn. Peter Johner, Jr., Box 101, East Williston.
- 12-13 Texas (B\*), West Texas Pistol, El Paso. William P. Sullivan, P. O. Box 533. 12-20 Massachusetts, United Service Matches, Camp Curtis Guild. Raymond L. Clapp, 131 Lexington St., Waltham.
- 13 Michigan (C\*), Great Lakes Pistol, Detroit. Joe Nikoden, Box 56, College Park Station. 18-20 Washington (A\*), Pacific North West Regional Pistol, Raymond. Malcolm B.
- Edwards, Box 776, South Bend.

  19-20 New York (C\*), Western N. Y. Pistol, Buffalo. L. C. Parson, 447 Shirley Ave.

  19-20 Virginia (B\*), State Pistol, Richmond. Bernard Gray, 2216 Stuart Avenue.

  19-20 Arkansas, Fort Smith Pistol, Fort Smith. Ed. Coughlin, 808 Clifton Court.

20 Illinois (C\*), Illini Pistol, Champaign. P. E. Hotchkiss, 804 West Healy.
20 Ohio (B\*), State Pistol, Mt. Gilead. C. I. Greer, Box 123, Barberton.
20 Tennessee (B\*), State Pistol, Nashville. John B. Milliron, 1111 Lischey Ave.
25-27 California (A\*), Far Western Regional Pistol, Glendale. J. E. Cornell, 662 Arden Avenue, Glendale,

25-27 Florida (A\*), Southeastern Regional Pistol, Jacksonville. C. A. Brown, Traffic

25-27 Piorida (A<sup>-</sup>), Southeastern Regional Fistol, Jackson R. V. Gray, Box 275.

26-27 Michigan (A), North Central Regional Pistol, Jackson. R. V. Gray, Box 275.

26-27 Nebraska (B\*), Corn States Pistol, Omaha. Dr. E. A. Holyoke, 4534 Seward Street.

26-27 New Jersey (B\*), State Pistol, Plainfield. William Lewis, P. O. Box 1420, Trenton.

### AUGUST

2 New Mexico (C), Small Bore Rifle, Clovis. J. B. Ledbetter, Clovis.
2-3 Delaware (B\*), Tidewaters Rifle, Wilmington. F. C. Wince, P. O. Box 302.
2-3 New York (B\*), All Range Championship Rifle, Poughkeepsie. C. Hoyt Smith, P. O.

2-3 Oklahoma (B\*), Magic Empire Rifle, Tulsa. Ray B. Whitaker, 114 South Detroit. 3 Illinois (C\*), I. S. R. A. Rifle, Fort Sheridan. Thomas Compere, 336 North Wells

Street, Chicago.

3 Indiana (C\*), Wabash Valley Rifle, Terra Haute. W. E. Danner, 2325 North 11th St. 3 Iowa (B\*), Southern Minnesota-Northern Iowa Rifle, Waterloo. Ralph W. Travis, 314 Insurance Building, Waterloo.

3 New Mexico (B\*), State Small Bore, Clovis. B. L. Smith, Box 905, Sante Fe.

3 Ohio (B\*), Zeppelin Rifle, Akron. J. C. Kelsey, 133 Highpoint Avenue.

9-10 Virginia (B\*), Summer Rifle Tournament, Portsmouth. A. W., 417 Madison Street.

9-10 Wisconsin (B\*), State Small Bore, Racine. Oliver Moody, 5527 North 35th Street,

10 California, Bay District Small Bore League Match, Richmond. C. DeWitt, 3701 Lincoln

Avenue, Oakland.

10 New York, Off Hand .30 Caliber, Karner. D. C. Reilly, 55 North Pine Avenue, Albany.

10 Ohio (C), State Rifle Team Matches, Mt. Gilead. C. I. Greer, Box 123, Barberton.

10 Pennsylvania (C), Allegheny Rifle League, Harmarville. James Affleck, Box 2038.

16-17 Illinois (C\*), Blackhawk Rifle, Aurora. E. J. Rock, 1162 Highland Avenue, Oak

17 Minnesota (B\*), State Rifle, Virginia. K. W. Cruse, Sergeant, Rifle Range, University of Minn., Minneapolis.

17 New York (C\*), 4th Annual Small Bore, Glens Falls. Paul H. Colburn, Box 62.
17 Pennsylvania (C), Allegeny Valley Rifle, Kittaning. W. E. Forbes, 605 Campbell Ave-

nue, New Kensington.

17 Wisconsin, Small Bore, Janesville. John D. Wemstrom, Janesville.
24 Wisconsin, Fall Big Bore Rifle, Racine. Oliver Moody, 5527 No. 35th St., Milwaukee.

1-3 California (B\*), 7th Southwest International Pistol, San Diego. R. S. Pease, Route 3, Box 84.

2-3 New Jersey, Police Pistol, Irvington. George C. Krasle, Police Department. 3 Minnesota (C\*), Annual Arrowhead Pistol, Virginia. Andrew Bradish, Virginia

3 Pennsylvania (C\*), Cumberland Valley Pistol, Chambersburg. J. Humbird Linn, 232 Lincoln Way, East.

10 Iowa (B\*), State Pistol, Shreveport. L. N. Semon, P. O. Box 505.
10 Iowa (B\*), State Pistol, Des Moines. G. G. Cooper, 816 Telephone Building.
10 Washington (C), Capital Pistol League, Raymond. Malcolm B. Edwards, Box 776.

South Bend.

15-17 New Jersey, Teaneck Pistol, Teaneck. Lt. Theodore Morgan, Police Department. 16-17 California (B\*), Pacific States Pistol, San Francisco. E. J. Dutil, 635 Washington St. 17 District of Columbia (C\*), National Capital Pistol, Washington. Tom Arnold, 7 McCreary Street, Hyattsville, Maryland.

30-31 & September 1 Washington (B\*), Capital Pistol League Championship, Raymond.

Malcolm B. Edwards, Box 776, South Bend.

### **SEPTEMBER**

31 August & September 1-7 Ohio (AA\*), National Pistol and Small Bore, Camp Perry.

14 California (C\*), Fall Rifle, Marysville. Floyd E. Smith, 1311 Lemon Street.
 14 Illinois (C\*), Small Bore Rifle, Deerûeld. George Postels, 2 North Sheridan Road,

Highland Park.

14 Montana (C), Anaconda Fall Rifle, Anaconda. J. E. Perro, 124 West Park Street.
 14 New York (C\*), Indian Summer Small Bore, Elmira. Greg Allen, 29 Dininny Place.
 14 Pennsylvania (C), Allegeny Valley Rifle, Tarentum. W. E. Forbes, 605 Campbell Avenue, New Kensington.

21 Illinois (C\*), Illini Fall Rifle, Champaign. P. E. Hotchkiss, 804 West Healy.

21 New York (C\*), N. Y. C. A. A. Rifle, Albany. O. E. Whitbeck, 122 Morris Street.

21 Wisconsin (C), Milwaukee District Fall Small Bore, Racine. Jerry Gruber, 3049

North Second St., Milwaukee.

27-28 Oklahoma (B\*), State Rifle, Tulsa. R. A. McGoon, Box 1065, Enid.

#### PISTOL

31 August & September 1-7 Ohio (AA\*), National Pistol and Small Bore, Camp Perry.

13-14 Oklahoma (B\*), State Pistol, Drumright. R. A. McGoon, Box 1063, Enid. 20-21 Connecticut, North Atlantic States Pistol, Hartford. John P. Leonard, 10 Mt. View Avenue, Avon. 20-21 Minnesota (B\*), State Pistol, Minneapolis. Sergeant K. W. Cruse, Rifle Range,

University of Minn., Minneapolis.

21 (C\*), San Francisco Traffic Police Monthly, Fort Funston. E. J. Dutil, 635 Washington San Francisco.

27-28 Ohio (B\*), Summit County Pistol, Akron. J. C. Kelsey, 133 Highpoint Avenue 28 Arizona, Pistol Tournament, Phoenix. Howard Hathaway, Box 71, Tucson.

28 Iowa (B\*), North Iowa Pistol, Mason City. Don Wells, Box 262.

### **OBITUARIES**

### DOCTOR A. A. MERRILL

The Bay State Rifle and Pistol Association is one of the oldest State Rifle Associations. Like all of the older Associations, it has had its periods of greater and lesser activity. It was Doctor A. A. Merrill, of Boston, who was largely responsible for picking the Bay State Association out of one of its periods of inactivity and injecting new life into it some-thing more than a decade ago. He gave un-selfishly of his time and energy in an effort to create a more active State Association by welding together the small bore and .30 cal-iber shooters of the State. With new energy injected into the Association, he turned over the range to younger men and had been inactive for the past several years. He died suddenly of a heart attack on Patriots' Day, April 18th.

#### J. GILBERT HEATH

J. Gilbert Heath, 60, Pacific Coast Sales Manager of the Remington Arms Company, died Saturday afternoon, May 24 in San Francisco. Mr. Heath had a long and distinguished career with the Remington organization. He was first employed in 1895 by Hartley & Graham of New York, owners and selling agents for Remington Arms-Union Metallic Cartridge Company. In 1905, at the age of 24, Mr. Heath was appointed district manager for New York and Pennsylvania, and in 1910 was appointed manager of the Pacific Coast territory. In 1925 Mr. Heath became head of the Remington Cash Register Division at Ilion, New York and in 1926 went to New York City to take charge of sales of all products of the company. In 1928 he returned to the Pacific Coast to be in charge of all territory west of Denver, El Paso, and western Montana. Mr. Heath was widely known in the arms and ammunition industry and among jobbers, dealers and sportsmen throughout the country.

#### WILLIAM D. MURPHY

California has lost one of its old-timers of the shooting game in the death of William D. Murphy of Pasadena, who died there on May 26th, after a residence of 25 years. A close friend of the late Capt. E. C. Crossman, Mr. Murphy was a member of the old Los Angeles Rifle Club, and later of the Burbank Rifle Club, when the former club disbanded and its members went over to the Burbank Club. He is survived by his wife, a son and sister.

#### PAUL H. MANLY

Paul Harold Manly, known to RIFLEMAN readers as a frequent contributor, was born in Cherokee, Kansas in 1883, and spent many years in the sparsely settled back country of Washington and Oregon. In 1905 he took out a homestead near White Salmon, Washington, and spent much of his time logging along the Washington coast. Mr. Manly died at his home in Rainier, Oregon on May 5th, following a long illness. He is survived by his widow and four children

### **CHALLENGES**

The McDonald Rifle Club, McDonald, Ohio, wishes postal matches or shoulder-to-shoulder competition: 50 yard, 50 meter or 100 yard outdoor; 75 foot indoor. Will shoot any or iron sight course, positions as desired. Average last season 952 for 20 shot four position indoor course. Contact Vernon Franklin, Secretary, RFD No. 2, Canfield,

### THIS MONTH:

Offset Eye Pieces · Electrical Letoffs · Rationalized Drop Dope · The High Power Lovell · The 22 Streamline · Rega Bullets · Relative Ballistic Efficiency · Several New Gadgets · Clarification · The 25-35 · The .25 Remington · The .250 Savage · The .257 Roberts · Trade Dope · Letters

Periscopes for "lefties" is what Norman G. Albree has recently invented as part of a continuous chain of practical things including a modern monoplane years before its time, bullets of improved efficiency, a superior "Bull Pup" years before the name was coined, score books, the Keeper's Keeper and Albree mounts.

His latest "Lefti Scope" is a clever prism arrangement for offset aiming. It is a practical gadget because it is flexible and can be used by any shooter on any arm fired from either shoulder. Furthermore it is adapted for scope sights, tube sights and peep sights. It will qualify in the metallic-sight events because metal prisms or mirrors are used to meet the rules. Albree's new gadget is, in short, the first practical solution of the offsetamining problem and the first commercially-practical device of this nature due to its universal application, simplicity and moderate

Albree unwrapped a bundle he had brought to the range and disclosed one of his "Bullettes", the thoroughbred sire of all mongrel "Bull Pups" which have cropped up in recent years. This one was a .22. He screwed on his Monomount and scope. No one could possibly get his eye low enough to look through its aperture, until Albree pulled his "Lefti-Scope" from his pocket and slipped it on the Weaver eye piece. This made the new position about 2½ inches higher which was just right with that straight comb. Of course, it will work as well under the opposite condition of an extremely low comb or high sight line.

After some offhand shooting from the right shoulder, we decided to do some prone shooting from the left shoulder. Now the "Lefti-Scope" was unlocked and tipped to the right until it aligned with the eye comfortably. There was no change in zero, no matter which eye or shoulder was used in a given shooting position. The master eye always can be used.

Another invention Albree sprung on us was his electrical-impulse letoff. The gun could not be fired until the circuit had been closed; the trigger, of course, making the necessary contact. The pistol—grip end had a standard plug receptacle or outlet and a rubbercovered cord connected this and the Ford car battery. Albree's idea is to have all guns on the range connected in battery and under positive control of the range officer. Instead of a "cease firing" order he would merely give a warning and throw a switch which would make it impossible for anyone to fire. Likewise at the order to "commence firing" the range officer controls the starting time by throwing the switch thus making premature firing impossible.

Scope Too Low or comb too high is news, but E. J. Benthale ran into this trouble when he tried the 3/16-inch height of Albree Twinmounts on his M-75 Winchester. As a result Albree made a special pair of the required height and Benthal made a picture of the ensemble.

New Drop Figures. The most astonishing short-range trajectories we have obtained were those recorded by our 22 Rimless Niedner Magnum with its peak load of 29.0 grains No. 3031. The previous average drop over 200 yards for this load, as published in the May Dope Bag, was 5.04 inches for the 55-grain Sisk Niedner bullet and 5.93 inches for the 50-grain 8-S W. & M. bullet. Because these figures seemed unreasonable we had made repeated trials with no great change in the results. With the 50-grain 8-S bullet our greatest 200-yard drop was 6.40 inches, which is a reasonable figure.

6.40 inches, which is a reasonable figure.
On the last test we also got credible results with the 55-grain bullet. On the low side the 200-yard drop was 6.36 inches, and the maximum figure was 6.82 inches. Accordingly, we are going to average these two and accept the result as reasonable for the cartridge and bullet, which latter has an m.v. of about 3500 f.-s. These new drop figures are .37 inch over 50 yards, 1 inch over 100 yards and 6.59 inches over 200 yards.

Another rifle which has surprised us is the .22 H.P. Lovell. This is a rimmed case of about the same class as the .22 Niedner Magnum. The best load we have been able to develop in it is 32.0 grains of No. 4064 behind the 50-grain 8-S bullet. On the same occasion we fired it for relative drop. The results have it as follows: 50 yards, .56 inch; 100 yards, 1.32 inches; 200 yards, 6.08 inches. No other load does as well in this barrel whose sub-diameter requires a bullet diameter no larger than .223 inch. This one load, however, is quite satisfactory as it shoots into less than 1½ inches at 100 yards with the Sisk bullet and into 3.00 inches at 200 yards with the W. & M. bullet. Our 10-shot group at 200 yards with the latter 50-grain bullet had 8 in less than 1½ inches. The m.v. may be 3500 f.-s.

In this same category is our new .22 Streamline built for us by C. V. Schmitt with a heavy Springfield Type-T (Bull Gun) barrel on an M-1917 action. We have not as yet obtained a complete supply of bullets, but of those tried we have developed one good load. This barrel also requires subdiameter bullets, for which Con supplied a .2229-inch bullet-sizing die which we use with our Atlas 1½-ton press. Our best load is 39.5 grains of No. 4064 and an Ipco wad behind the 55-grain Sisk Express bullet, seated to make an overall cartridge length of 2.775 inches.

This tight bore gives an occasional flier, but we get 9 out of 10 shots in an inch at 100 yards and into less than 2½ inches at 200 yards. In the drop test this load and bullet showed .74 inch at 50 yards, 1.75 inches at 100 yards and 6.50 inches at 200 yards below the extended bore line. The midrange trajectories would be .44 inch over 100 yards and 1.6 inches over 200 yards. According to Con's chronograph our load develops fully 4100 f.-s., as he got 4050 f.-s. with one Sisk bullet and a half-grain less powder, and

The Elevated A'bree



4150 f.-s. with 40 grains behind another Sisk bullet of the same weight. Other velocities recorded with No. 4064 powder were:

39.0 grs. 55 W.&M. 4000 f.-s. 40.0 " 4200 " 4200 " 38.5 " 60 " 3950 " 4300 "

The Winchester bullet was .224-inch; the others, .2229 inch. In .224-inch diameter the 50-grain 8-S bullet develops 50 f.-s. higher velocity. With the 60-grain 8-S bullet the equivalent load of No. 4350 powder is 44.0 grains. So far our .22 Streamline load has accounted for a crow and woodchuck. The crow practically disintegrated but the chuck merely had a hole blown through its shoulders. The ranges were over 150 yards.

Misunderstandings may arise from misconstruing the meaning of the somewhat cryptic descriptions of advertised products in the Arms Chest. We are anticipating one such possibility by offering the following explanation regarding custom-built or conversion jobs.

When repeating rifles are converted to any custom caliber it is assumed that they become single-loaders unless the advertiser definitely states the magazine also has been converted to the new caliber or will handle the new cartridge.

Correction. R. E. Davis has informed us that the heavy loads quoted as from him in the June Dope Bag were with No. 4350 powder and not with No. 4320. The same weight of charge might be dangerous were 4320 substituted for 4350, which latter is a slower-burning propellant.

Pipe Dream "Winged Bullets" in a recent issue of a news magazine has caused considerable comment, because the item seemingly makes factual an imaginative invention utilized by a fiction writer in his story published in one of the military journals. There is nothing of this nature in existence contemplated for Army adoption, as it is fanciful rather than real.

Folding Rifle Rest was sent in by Melvin Doering. It is made of malleable iron with padded prongs at both ends and a flat cross piece in the middle to prevent tipping. The rests or prongs fold to meet in the middle, and the cross piece swings into alignment for compact carrying form. In use, it is merely set on top of the ground or any flat surface.

Freeland Lens Holder for peep sights tube sights and scope sights has come in from Al Freeland. Prescription-ground lenses in tube sights or peep-sight eye cups are legal in metallic-sight matches, because no optical system is involved and there is no glass between front and rear sights. Freeland is prepared to have lenses ground to any reasonable prescription at moderate cost, barring extreme cases, or the shooter can have his own optician fit the holder. It screws into the receiver or tang sight and is threaded in the center for an auxiliary sighting disc, also provided. The lens fits over this against one of a series of shoulders of various different diameters. Two narrow fiber collars are provided to cushion the lens on both sides and a threaded locking collar holds it securely in The particular lens diameter accommodated is 11/8 inches, which is a generous size and ample for any one's purpose. A new circular from Freeland shows the Griffith Shooting Aperture for pistol shooters, in snap-on and sun-glass models at low cost. The lens holder is shown in his catalog.

Barrel-Tempering Source. R. C. Williams, 707 West Market St., Lima, Ohio, has offered to cooperate with experimenters who wish to temper rifle barrels with minimum warpage and no scale. Electric furnaces are used for perfect heat control in the three stages of 1600, 2300 and 1200 degrees Fahrenheit for preheating, heating and quenching, respectively. Rapid circulation of molten heated salts and uniformity of heat distribution insure proper results.

"Wristloader" is a soft-leather, zipperclosed, ammunition pocket on a strap to fit the wrist. It holds an open box of .22caliber cartridges for convenient reloading of small-bore rifle or pistol. Designed for the opposite wrist, it is worn inside the wrist by handgunners and outside by rifle shooters. It is comfortable and inexpensixe and should appeal to the plinker and hunter as well as to target shooters. This clever item was sent in by the Mershon Company, Inc., of Glendale, Calif.

Wooden Rod Guide is Bill Trull's latest idea, and a good one in view of the aluminum shortage. These rod guides are made of hardwood and oiled for added toughness. They fit the receivers of the 52 Winchester and 37 Remington, both, and will fit a .22-caliber cleaning rod and keep it in alignment with the bore. At two bits they should be a good investment. See recent advertisements of the Westchester Trading Post.

\*

New Meepos Tool. The low-cost vertical bench tool made by the Meepos Gun Shop has been doing a very satisfactory reloading job for us over the past two years. Now the firm has added a new vertical tool for bullet sizing and lubricating which they call the Meepos Speedlube, shown here. While there are three handles visible, only the two lower ones are used, the top handle being provided for adjustment of the grease pressure only when the tool is set up or refilled with lubricant. The lower handle is pressed down to force grease into the bullet grooves after the middle handle has been lowered to press the bullet into the die under its plunger. A feature is the low cost of extra dies and bullet pins. No sample has been received for trial.

Improved 29S Weaver makes an unusually good buy of this scope sight, which with the Weaver Type-T side-bracket mount costs little if any more than many receiver sights, and less than some of them. The optics have been improved to make the field of view clearer, sharper and brighter. This has been done without increasing prices.

The new or improved "29S" scopes are so

The new or improved "29S" scopes are so marked; the old model being stamped, "M-29S". Another distinguishing feature is the stamping of the Weaver trade mark, etc., on the reticule-housing plate of all new models. This Weaver scope in both models represents an unusual value at its low cost, because it can be used on rifles of heavy recoil.

Type-T Weaver Mount



Rega Results. We have now tried both forms of the 70-grain .25 caliber S.P. copper-jacketed bullets made by the Rega Manufacturing Co., for .257 rifles. They quoted 3200 f.-s. with 37 grains of No. 3031 or 33 grains of HiVel No. 2 and 3150 f.-s. with 88 grains of 4064 powder. The very best load we developed in the .250 Savage was 39 grains of No. 3031 and an Ipco wad behind these bullets, which miked .2575 inch in the new form and .2565 inch in the original form. Both forms have 4-caliber heads with exposed lead tips. The earlier model had a wide flat nose, while the latest improved form has a sharply pointed nose.

The flat-nose bullet would group into about 1½ inches at 100 yards and 3½ inches at 200 yards. The pointed bullet did slightly better than that at both ranges. The flat-nosed bullet showed a drop from the boreline of about 1 inch at 50 yards, 2.43 inches over 100 yards and 10.07 inches over 200 yards. The new pointed bullet with the same load dropped .75 inch at 50 yards, 2.20 inches over 100 yards and 8 inches over 200 yards. At our estimated velocity of 3350 f.-s. m.v., the flat-nose bullet drifted .184 inch at 150 yards per mile of cross wind. We have not tried the pointed bullet for wind drift, but the 60-grain W.T. & C.W. bullet, at 3550 f.-s. m.v., drifted .062 inch per mile of cross wind. This means that, in a cross wind of 10-miles-per-hour velocity, both bullets would drift 10 times the figure quoted above for the 150-yard range. The new bullet's m.v. was 3400 f.-s.

range. The new bullet's m.v. was 3400 f.-s.
In comparison, we tried in the same rifle some W.T. & C.W. bullets of the same weight (70 grains) with the same load of powder. The accuracy was not as good until we increased the charge to 40 grains of No. 3031 which made as good groups as had the Rega load. The 70-grain W.T. & C.W. bullet was also tried for drop using the same M-54 Winchester rifle and scope sight. With the 40-grain load the drop was .76 inch at 50 yards, 1.17 inches over 100 yards and 6.89 inches over 200 yards. The estimated m.v. was more than 3400 f.-s. With 39.0 grains of No. 3031 the W.T. & C.W. bullet gave about 3300 f.-s. and the drop figures we obtained for this load were: 1 inch at 50 yards, 2.66 inches over 100 yards and 10.67 inches over 200 yards.

In the .25 caliber the 60-grain bullet has a sectional density of .130 against .129 for the 45-grain .22-caliber bullet. The 70-grain bullet has an S.D. of .152 which is nearly equivalent to the .154 S.D. of a 54-grain .22-caliber bullet. It is this proportional length, or weight-and-diameter ratio, which helps sustain the bullet's velocity in flight and cut down wind deflection. The S.D. divided by the shape or form factor, some-

The Meepos Speedlube



times called the coefficient of reduction, is what determines the ballistic coefficient or efficiency rating of the bullet, referred to as its "C" value.

The "C" figure employed for a given bullet varies with the computation system employed or for different ballistic tables. But in all sytems the nearer this fractional value approaches unity (1) the more nearly perfect (100%) is the bullet's efficiency or ballistic performance. By the duPont charts, published in The American Rifleman back in 1925-26, the .25 caliber bullets mentioned above have the relative ratings which follow:

Bullet	Weight	Form	"C"
R.A. O.P	60-gr.	.78	.169
W.T.&C.W	66	.75	.175
14	70-gr.	.65	.235
Rega (old)	66	.67	.230
Rega (new)	6.6	.60	.258
R.A. O.P	87-gr.	.625	.305
N.R.A. C.B. (reformed)	46	.44	.435
W.T.&C.W	4.6	.59	.325
Barnes	8.8	.55	.340
66	100-gr.	.55	.400
W.T.&C.W	66	.59	.375
44	110-gr.	.59	.409
Wn. B.T	117-gr.	.675	.405

The .25-35

The rimmed bottle-neck .25-35 with 117-grain expanding bullet at 2175 f.-s. m.v. is about our minimum effective deer cartridge. I found this caliber of rifle in the hands of Colorado elk hunters last fall. It is too light, even for deer, unless circumstances are favorable. A well-placed hit from a reasonable distance on a stalked and unalarmed quarry would make practically any caliber effective on practically any game. The 117-grain bullet has a remaining velocity of 1880 f.-s. at 100 yards, with a trajectory and drop over that distance of 1 inch and 4 inches, respectively. The 200-yard drop is 20 inches, and a foot more than twice that at 300 yards.

The 117-grain bullet is now loaded to an m.v. of between 2280 f.-s. and 2350 f.-s. The 200-yard trajectory and drop are about half a foot and two feet, respectively. Factory ammunition for varmint shooting is also available with 87-grain bullets at 2700 f.-s. m.v. This drops only a foot over 200 yards and the midrange trajectory is 3 inches. Being rimmed, the 25-35 is adapted for falling-block single-shot rifles as well as for the lever-action repeater. Sedgley-Krags, which were converted to the 25-35 caliber, were well liked by their owners. It is inherently an accurate cartridge and I had good results with it in the M-99 Savage repeater. The long 117-grain bullet required a twist of one turn in 3½ inches and it would group into a spread as small as 3 inches at 200 yards in factory tests. However, the latent accuracy of the .25-35 is best brought out with a slower twist of 14 inches for the 87-grain

(Continued on page 38)

Target S.A. Colt for the .357 Magnum cartridge is shown as dolled up by J. J. Bartolot, P. O. Box 426, Whittier, Calif., who agrees to send specifications to anyone interested. The photo was marked as from the Frontier Gunshop, same address. Bartolot says the action is perfected to a target-arm degree and that it handles and performs better than it looks.

The Dolled Up Colt



and 100-grain bullets. In a good close-chambered barrel properly hooked up with a good action and tested with good .25-caliber bullets, it has shown its ability to compete with any caliber on the target range up to 200

yards in any kind of weather.

George Schneering proved this out to his own satisfaction when he used 281/2 to 291/2 grains of No. 3031 behind the Western Cartridge Company 87-grain bullet in a 14-inch twist. He had good results in the field on chucks as well as on the target range. In the neighborhood of 2700 f.-s. m.y. his 87grain bullets shot into less than a minute-ofangle at 100 yards, and averaged just over that amount of extreme spread at 200 yards. The drop between 100 and 200 yards was about 3 inches. Its wind bucking ability was superior to that of the high-velocity .22-caliber loads with which George compared it, and the absence of fliers or wild shots, even from a cold bore, was noticeable and noteworthy.

#### The .25 Remington

This is a rimless version of the .25-35 Winchester, adapted for the slide-action, autoloading and bolt-action Remington rifles. The bullet weights and ballistics are the same, or very nearly so, although the rimless case has a slightly greater capacity and its barrels employ the slower twist of a turn in 10 inches. Fred Daniels, the Edmonton moose slayer, has found it very effective for his style of hunting, but it is, in fact, the very lightest of legitimate deer cartridges. In Pennsyl-vania we found the 87-grain load to be rather

ineffective on excited deer.

The slide-action Remington rifle is satisfactorily accurate in this caliber, but it has been found that the badly stretched fired cases could not be effectively reloaded, because the extraction groove tended to close under the pressure of the essential subsequent full-length sizing. The Model 30-S boltaction was very accurate and its fired cases were well adapted for reloading. In my own rifle I fired a couple hundred rounds nearly every week for several years, less than a thousand of which were factory loads. The accuracy of the first barrel fell off between 10,000 and 15,000 rounds. The life of the second barrel was never determined and that of the second rifle in this caliber became, through successive conversions, a .250 Savage and a .257 Roberts. This maintained the 10-inch twist for all three cartridges. With the 87-grain bullet the .250 Savage

develops 300 f.-s. higher velocity than the .25 Remington and the .257 Roberts develops 200 f.-s. higher velocity than that of the .250 Savage with this bullet. With the 100-grain bullet the old U.S.C.Co. cartridge developed 2460 f.-s. m.v. in both the .25-35 and .25 Remington caliber. This bullet could not be handloaded to exceed 2650 f.-s. with maximum charges in the .25 Remington. In the .250 Savage the 100-grain bullet readily makes 2800 f.-s. and in the .257 Roberts, about a hundred additional foot seconds. With the 117-grain bullet, the maximum velocity in the .25 Remington is about 2400 f.-s. and in the .257 Roberts, 2700 f.-s. In .250 Savage the limit would be about 2650 f.-s. This long bullet was practical in the 10-inch twist and 9-inch twist barrels we used on the .250 Savage, but it would tip when used in the standard 14-inch twist.

In the .25 Remington bolt-action the 60grain .25-20 bullet could be given 3200 f.-s.; and 3300 in the .250 Savage. This bullet is very accurate in the 14-inch twist but not so good in the 10-inch twist. In any case, it is not a very good wind bucker, but fine for chucks in the .250 Savage on calm days. The 87-grain bullet is also probably at its best in the 14-inch twist, which twist also handles the 100-grain bullet very well. The special province of the .25 Remington and the .257 Roberts is for express loads with the relatively long and heavy 117-grain bullet. Here the .257 Roberts has an edge of 300 f.-s. m.v. over the .25 Remington.

#### The .250 Savage

This is an extremely well-balanced cartridge, and good bolt-action rifles whose barrels have 14-inch twists in this caliber will serve the varmint purpose of the .25 Remington with light bullets and the deer-hunting purpose of the .257 Roberts with the 100grain bullet. On deer the 100-grain bullet from the .250 Savage seems to give the same killing effect as the 180-grain bullet from the .30-'06. It has been effectively used on the heaviest American game, including grizzly bear, but it is best confined to deer, sheep, antelope, caribou and black bear in the realm of big game. It is a fine varmint and target cartridge, and one that is among the best suited for reloading. It is accurate with a variety of loads and bullets ranging from 60 to 100 grains in weight.

Factory ballistics of the .250 Savage give the 100-grain bullet an m.v. of 2800 to 2900 f.-s. with a drop over 300 yards of 28 inches and a trajectory of 7 inches or less. The 200-yard drop and trajectory are a foot and 3 inches, respectively. The 87-grain bullet at 3000 f.-s. m.v. has 4 inches less drop over 300 yards and ½ inch lower trajectory over 200 yards with a remaining velocity of 2700 f.-s. at 100 yards. The 100-grain bullet has about 2500 f.-s. left at that distance and a remaining energy of about 1400 ft.-lbs. which is about the same as that of the 87-grain

The .250 Savage rifle is pleasant to shoot and it is characterized by light recoil. With the .257 Roberts and 7-mm. it belongs to the group of practical game cartridges which are adapted for people of slight physique. My first M-54 Winchester surprised me by shooting into 31/2 inches or less at 200 yards with sporting bead and receiver sights exactly as came from the factory, and with different brands of .250 Savage ammunition. It is also a fine cartridge in the Model-99 Savage leveraction, which rifle made the caliber popular.

### The .257 Roberts

At 3200 f.-s. m.v., from this longer case. the 87-grain bullet equals the trajectory of the .250 Savage and its 100-grain bullet at 2900 f.-s. m.v. duplicates all the ballistics of the .250 Savage. However, the .257 Roberts and its 10-inch twist can make efficient use of the 117-grain bullet, unlike the .250 Savage. With this longer bullet, at 2650 f .- s., the .257 Roberts is better adapted for the heavier game and the longer ranges of Western hunting as compared with the .250 Savage. The 117-grain bullet drops 28 inches over 300 vards and it has a midrange trajectory of 2.5 inches over 200 yards with a remaining velocity of 2350 f .- s. at the end of the first hundred yards.

One of the best 117-grain bullets we have tried is the Western O.P. boat-tail, and the S.P. version of this same bullet is practically as accurate. It will work with charges as low as 29.0 grains of No. 4320, and with a maximum load of No. 4064 (38.0 grains) it will shoot into a spread of one minute of angle. We consider it one of the most accurate .25-caliber bullets we have tried, and we

used the cheaper .25-35 version.

Dr. R. W. Kelly, of Wellesley, Mass., and his group used this Western .25-35, 117-grain O.P.B.T. bullet in the .257 Roberts with excellent results. They segregated and selected their bullets according to weight and diameter. Diameter differences are more influential upon the impact and accuracy than weight differences. The Kelly system was to use a 3/8-inch plate of steel having four true holes of .2565, .2570, .2575 and .2580 inch diameter for readily picking out the bullets per diameter variation. He found about 7% of these bullets had to be weeded out as potential

fliers because they were out of round or varied as much as .003 inch in diameter from the normal lot. About 4% were eliminated because of extreme weight variation which ran as high as 3 grains from minimum to maximum. In addition to these eliminations the normal lot was segregated into three Jots of 116.5, 117 and 117.5 grains each. With the bad bullets deleted the normal lot gave one-inch groups per hundred yards.

The loads used, other than those already mentioned, were: 38.5 grains of No. 4064 and 36.5 grains of No. 1185 with F.A. No. 70 primers. The chuck load was 39.0 grains of No. 3031 or 39.5 grains of No. 4064 with the W.T.&C.W. 100-grain bullet and R.A. No. 91/2 primers. Dr. Kelly believes in the heavier bullets for game shooting. For him the 87-grain F.M.J. bullet at 3000 f.-s. m.v. killed mountain lions, but they blew up on striking bones and were somewhat damaging to the

Mr. R. A. VanAmburg of Dr. Kelly's group improved the .25-35 boat-tail bullet by turning, inserting, centering and assembling a sharply-pointed aluminum tip, which made the bullet weigh 114 grains. It conwith the same tinued to give fine accuracy powder charges in the .257 Roberts. It was believed that it had a higher muzzle velocity than the standard 117-grain bullet and that the differential at 200 yards would be even greater. However, when I had these bullets tested by J. B. Smith, it showed very little increase at either range. Five shots were averaged at 25 feet and 3 shots at 200 yards with each load. Using 38.0 grains of No. 4064 the standard bullet gave a mean of 2730 f.-s. against 2754 f.-s. for the reformed bullet At 200 yards the standard bullet gave 2100 f.-s. and the reformed bullet 2134 f.-s.

Five years ago Jerry Gebby sent me some groups he had fired in his .257 Roberts with different weights of bullets. They were all good enough, but it was noticeable that those with the 87-grain were poorest and those with the Western 117-grain B. T. bullet were best. He used 36 grains of No. 4064 and 35 grains of No. 3031 behind this bullet, the latter being the better with 10 shots under an inch at 100 yards. Gebby's remark, in 1936, was that out of three .257 Roberts rifles and six .220 Swift rifles the former averaged better accuracy. The fine groups were fired with 261/2-inch barrel tapered to 7/8-inch from

11/4 inches at the breech end. I can see an advantage in using the .257 Roberts with the 117-grain bullet. Those who use this bullet at long range in varmint shootfind it superior to the .220 Swift and similar .22-caliber cartridges in the wind. The 55-grain .22-caliber bullet has a sectional density of only .160 against .243 for the .25 caliber 117-grain bullet. Another good bullet which is not adapted for the 14inch twist, but which the .257 Roberts can handle well, is the pointed 110-grain W.T.& C.W. bullet. This has a sectional density of It would take an 80-grain bullet to

equal it in the .22 caliber.

Harvey Donaldson says the way the .25 caliber stacks up, it requires a 10-inch twist for the 117-grain bullet, a 12-inch twist for the 100-grain bullet, a 14-inch twist for the 87-grain bullet and one turn in 16 inches for the 60-grain bullet. The latter bullet has the sectional density of the 45-grain bullet in the .22 caliber which should indicate the advantage of the 25-caliber over the .22. Granting equal velocity, accuracy and shape, the 70-grain W.T.&C.W. bullet in .25 caliber should be a better long-range varmint bullet in the wind than anything we now use in the 2-R Lovell or .219 Zipper. Such a bullet would have to be used in the 14-inch twist of the .250 Savage, or some latent accuracy

would be sacrificed.

Philip Necomb, of Manchester, Conn., finds that any of his reloads shoot better than factory ammunition in his .257 Roberts. He uses Lyman No. 2 bullet metal and gascheck cups with No. 2400 powder. The 63grain bullet did best with 14 grains powder, but even with 21 grains it outshot the best factory loads at 100 yards. With the 100grain gas-check bullet he used 16 and 20 grains of No. 2400 and had 11/4-inch groups at 100 yards and about 3 inches spread at

200 yards.

Kenneth E. Clark, who features an M-1917 and Krag Speed Action, tried one of Ralph Pike's combination loads in the .257 Roberts behind the W.T.&C.W. 115-grain bullet. He used 61/2 grains No. 2400, 6 grains Lightning and 26½ grains No. 4320 as a maximum. This load heated the barrel less in twenty shots than the standard load did in five. The accuracy was very good and the load was very flat shooting over 300 yards. With the Weaver 330 scope the impact was 4 inches above aim at 100 yards, 3 inches high at 200 yards and 4 inches below aim at 300 yards. The velocity must have been in the neighborhood of 3000 f.-s. m.v.

Ralph Pike and James Gerry have had marvelous success with their combination powder charges, but many who have tried to emulate them have come to grief, resulting in wrecked guns or worse.

#### TRADE DOPE

Tri-Pak Oil is a new rust-proofing lubricant by the makers of the jointed, aluminum, cleaning rods known as the Tri-Pak Gun Kit. The new sperm-lanolin product is said to be non-gumming and long-lasting. We have not had a sample for test as yet. It comes in an unbreakable, dentproof and leakproof bottle made of a clear transparent plastic instead of It is claimed the weight is only a fifth of that of metal or glass containers. This is something new in oil packaging.

\* Graham Chemical Co., says their Military Gun-Blu consists of two chemical solutions: (1) Alpha, which plates ferrous metals with a measurable coat of Cupricstannate (bronze) and (2) Omega, which converts the first coat to low oxides of dark blue, gun metal or black colors according to the number of ap-They also claim abrasion tests indicates their Gun-Blu finish compares favorably with original heat-drawn finish and, further, that the War Department has ordered their product for gun bluing. We announced it in June.

J. Gilbert Heath, Pacific Coast Sales Manager of Remington Arms Co., died May 24 in San Francisco, according to a notice received here from his firm, with which Mr. Heath had been identified since 1895. He was a district manager for Remington at the age of 25, which was back in 1905.

Virgil Richard, Remington sales representative for Pennsylvania, has been appointed Sales Manager of the New York District with his office in the Empire State Building, New York City. He succeeds H. J. Strugnell.

Mr. Strugnell has been promoted to Sales Manager of the Pacific Coast District with headquarters at 55 New Montgomery St., San Francisco, Calif., succeeding the late J. Gilbert Heath. He has been with Remington since the turn of the century. Virgil Richard, formerly with Winchester, joined Remington's staff in 1931.

New Ideal-Boser bullet, No. 429454 is available for the .44 Special. Gordon C. Boser designed it for game shooting. It is a flat-end taper-nose with a seating depth of 350 inch for regular crimping. In the 44-40 it must be seated .430 inch deep to conform with the revolver-cylinder length. In 1-20 temper it weighs 240 grains, solid, and 225 grains when cast hollow point.

L. G. Thomas advises a necessary raise in price of Thomas-Womack trigger mechanisms due to new licenses, taxes and increased material costs which amount to three bucks per unit. The new price is eighteen dollars.

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M. L. Smith who has done a good conversion job on a couple of our M-1917 actions in the cocking, firing and trigger departments, also does other things to this rifle. In addition to his Slick Trigger and bolt alteration, he straightens and shortens the bolt handle, grinds the follower, remodels the bolt catch, straightens the floorplate, grinds the receiver to a flat top and cuts and recrowns the barrel.

New Address. Keith Stegall, the stock maker, has moved his place of business from Wickett to Kermit, Texas. \*

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Phil Sharpe says he is working on a re-vision of his book on handloading to bring the new edition up-to-date. It is scheduled to appear this autumn. \*

High Standard announces a change in organization, made necessary by the production of machine guns by The High Standard Manufacturing Co. That portion of the business engaged in pistol manufacture has been purchased by The High Standard Manufacturing Corporation which will continue the manufacture of High Standard pistols at New Haven with no change in management. Mr. F. E. Bradley, president-elect, will continue

Tang Scope. A circular from Mohawk Products of Cohoes, N. Y., shows a 6½-inch scope mounted on the tang of a Model-99 Savage rifle. Circular claims are: only a screw-driver is needed for attaching, but one thumb screw need be loosened to permit use of metallic sights, scope axis is but ¼-inch higher than regular sight line, and scope relief of 3 to 4 inches protects the eye from recoil effects. Mounts for other rifles are in process of development.

Hensley & Gibbs it will be from now on, in place of George A. Hensley, Machine Shop, 2692 "E" street, San Diego, Calif. The address has not been changed. Gibbs has been associated with Hensley for some time.

#### **LETTERS**

Crow Calls and Shotguns. Some time back, in this magazine or another, I remember reading a reference to a Garrison call; also the Jahn call. So far I have been unable to find either. I have been using a call made by P. S. Olt. It has not been very satisfactory. I don't seem to be able to get the right pitch or note to the call. So far I have cracked three reeds in it. Maybe I don't know how to use it. I get fair results with my throat, but soon get hoarse. I have called many of the "black devils" and I half-way know their language or else fool them, so that they come in to see what new creature has invaded their domain.

I do most of my hunting of them by driving from woods to woods, hiding the car as best I can, then finding a tall dead snag with the best cover available for myself. In this way it takes considerable calling, especially on windy days. I would like to be able to imitate the owl, but can't seem to make it sound natural enough. I have a partner that does real well. So well, in fact, that at times I turn around and expect to see one perched in a nearby tree. He has good luck on

chicken hawks too.

I have a Parker P. H.-12-30. I got it in a trade some few years ago. The outside

appearance is very good, but the barrels inside were badly pitted. I wrote to the Parker people in regard to them, but they suggested new barrels VH at \$32.00. I didn't want to put that much into the gun. Could I cut off, say 3 inches, and still have a gun that would be suitable for rabbits, pheasants, ducks and crows? Or would it be too open? I generally use Super-X 71/2 as I am rather slow in getting the gun up and need the extra range. I have noticed that on these shells after they have been fired an impression that looks as if the chamber is not quite long enough, by about 1/8 to 3/16 inch. much will this affect my patterns?-J. W. H.

Answer: The Garrison and Jahn crow calls may be purchased from the following: George H. Garrison, Delphi, Indiana, and J. R. Jahn, Spirit Lake, Iowa.

You should be able to get satisfactory results from almost any crow call which you purchase. The first time I tried a crow call without any decoy I walked into a sporting goods store and bought a celluloid call for "two bits." Going out into the country with a Remington auto-loading shotgun I took a position under the nearest oak tree and after giving a few calls a flock of four crows came over the tree and I bagged two of them. This cheap call continued to bring practical results, but its rapidly vibrating small metal reed was very painful to the lips and caused a partial paralysis after brief

My most recent experience was with the Allen crow call made by the makers of Allen duck call with which nearly everyone is familiar as all sporting goods stores handle this call. This Allen crow call I picked up here in Washington a couple of weeks ago in a sporting goods store for one "buck." I was on my way out into the country and tramped around the old Antietam Creek battle ground. On both occasions when I tried the new crow call it brought immediate results. I would, therefore, say that you could get results with any good crow call and most of them are accompanied by directions which will bring results when properly followed.

I would advise against cutting off your 30-inch Parker barrel if you want to use it for pheasants, ducks and crows. The full for pheasants, ducks and crows. power of the 12 gauge is needed for this game and the full power is obtained with a 30-inch This length of barrel also swings harrel. more steady and points more accurately. it doesn't balance properly you could weight the buttstock or extend it to make it longer. If you want to open the patterns for rabbitshooting, the best way would be to have Parker or Ithaca open the choke in one barrel. Cutting the barrels off 3 inches would remove the choke entirely and you would get very poor patterns and you would lose all that extra range which you say you need. If the chamber is short by 1/8-inch the unfolding of the crimp would lap the fired shell over the cone by this amount which is an advantage in getting closer patterns, higher velocity and less leading. It also increases pressures.

.30-'06 Loads. I would appreciate your answering the following questions:

1. I am thinking of reloading some cartridges to duplicate the 180-grain Western .30-706 Soft Nose and Open Point. What weight and kind of powder should I use. Would it be possible to use No. 2400?

2. I have a Russian Remington rifle that has been converted into a .30-'06. This rifle shoots fine and accurate and to date I have shot from two to three hundred Western 180-grain .30-'06 and twice as many Service loads, not counting the low-charged reloads. I have heard a lot of bad reports about this gun. What is your opinion of the one I have? Do you think that sometime it may turn on me?

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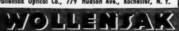
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Answer: Behind the 180 gr. Western bullet in the .30-'06 a charge of .45.5 grs. wt. Hercules HiVel No. 2 would give the standard Western factory muzzle velocity at moderate pressures, the maximum load being 47.6 grs. wt. which gives 2780 f.-s. at maximum pressures. The maximum load of Hercules 2400 powder is 34 grs. wt. giving 2400 f.-s. and maximum pressures. Avoid maximum loads.

I would advise against using a Russian rifle altered to .30-'06 caliber with any full-power .30-'06 load. The margin of safety is so little that it is only a matter of time until you get into trouble. I would advise against using anything more powerful than the International target load in this rifle and these should also prove most accurate. In these loads the 172 gr. and 180 gr. jacketed bullets are driven at velocities between 2200 and 2300 f.-s. and at moderate pressures. With Hercules 2400 powder behind either bullet you could use 30.0 grs. wt. giving 2200 f.-s. and pressures under 40,000 pounds. With Hercules HiVel No. 2 you can use 38.0 grs. wt. giving 2250 f.-s. at pressures slightly over 30,000 pounds.

Hi-Speeds in Revolvers. Will the .22 Long Rifle High Speed ammunition shoot Positive Revolver No. 214771; and is there any danger from their use in the revolver? The cylinder is not adapted for the high-

speed ammunition.—H. B.

Answer: One of the most effective loads which you can use in the 4-inch revolver is Palma Hi-Speed for maximum ballistics. Also its lubricated lead bullet will insure maximum bore life. Unless your cylinders are imbedded for the head of the cartridge, however, do not fire it without wearing shooting glasses and gloves to protect the eyes and fingers. The best plan would be to send the gun to the Colt Patent Fire Arms Manufacturing Company, Hartford, Connecticut, and have them supply an imbedded cylinder, or alter the present one. Sometimes a case head lets go and blows powder and particles of brass into your fingers, and possibly it could get into your eyes. Do not hold it near another person when firing it. \* \*

Altitude. I note in the June issue of Rifleman a reader wants my opinion on effect of elevation with regard to rifle zeroes at different altitudes.

Rifles sighted for 300 yard zero here at the ranch at an elevation of 4100 feet shot a full minute high at 5500 to 6000 feet when hunting coyotes. Checked this repeatedly many times and those same rifles, .280 Dubiel, .300 mag-num, .30 Newton and .285 O. K. H. all shot at least three minutes high at an elevation of 10,000 feet.

Also when taking my rifles sighted in here to Alaska for bear hunting I noticed plenty of change. A .35 Whelen sighted for 200 yards here shot a full three minutes low along the coast of Alaska on the Alaskan Peninsula and Cooks Inlet. A .333 O. K. H. sighted for 300 yards to print exactly at the top of the front sight shot exactly right for just 200 yards in S. E. Alaska. This gun was sighted for 300 yards here at the ranch at an elevation of 4100 feet. Don Martin a neighbor of mine who served 7 years as Deputy U. S. Marshal in Alaska found the same change in all his rifles taken up there.

On the other hand some British double barrel rifles we took to Alaska that had been sighted with their open sights in England, all shot about exactly right in Alaska along the sea coast, while those British rifles shot a bit high here at the ranch at 4100 feet; as near as we could tell, about three minutes high.

Have seen remarks by some gun authorities stating that elevation made no difference in point of impact at high and low altitudes, but must differ with such statements as I have proven them wrong too many times to leave

any slightest chance of being wrong. 375 magnum model 70 sighted here in Idaho shot about three minutes low in Alaska, same as the .35 Whelen did. All rifleman hunters should check their rifles carefully in the country they are going to hunt. I noticed far less change in point of impact of a .30 Newton taken to Sonora near the gulf of California, and although at low altitude this gun still shot about the same as at 4100 feet However the intense heat gave the cartridge considerable more velocity down there and that air was very dry and light even near sea level which is the reason for this variation of impact from what may usually be expected—ELMER KEITH.

Hornet Dope. I just made myself a present of a .22 Hornet in the Savage Sporter and now, before using it, would appreciate some advice. You see I am one of these fellows who has never used anything bigger than .22 before. I use nothing but Klean-bore HiSpeed or Western Super Speed and am careful to take only ground-shots and shots into rather thick woods and no open shots. I mean by this latter crows in a lone tree at 150 or 200 yards. These last mentioned to be taken only when I can see that everything is clear. For how far? I have been thinking at least ¾ mile. And how about care of the gun? I expect to use about care of the gun? I expect to use factory stuff in it. Would cleaning with a brass brush and then Hoppe No. 9 be enough?

I have been thinking if I would sight it in for 125 yards it would shoot 1 inch high at about 75, and drop about 3 more at 200. Is that about right and about how much more

at 250?-D. R. Yоно.

Answer: In your .22 Hornet I would suggest that you use Kleanbore Hi-Speed, Western Super-Speed or Super-X, all with Hollow Point bullet, and choose the one which gives the best accuracy in your individual rifle. With this high-velocity ammunition now developing 2625 f.-s., the Hollow Point will break up readily on impact, and as long as you see what you are striking, it will be safe enough. When shooting at a crow about 30 or 40 feet above the ground at 150 to 200 yards, you will get the maximum range of the bullet, and unless you connect, it will prove dangerous for more than a mile behind the target.

In cleaning after shooting modern noncorrosive ammunition all that will be neces sary is to swab the bore lightly with Anti-Rust Oil on a cleaning patch. With this oil you can get a coating which is thin enough to be left in the barrel when again you shoot it. At the same time it is as effective as a heavy swabbing of grease, which latter, of course, must be wiped out before shooting.

If you want to clean the bore after shooting, the most important thing is to get out the metallic wash from the copper coating of the bullets, because this sometimes sets up an electrolytic action, causing rust or corrosion of the bore. For this purpose, use a steel rod, like the Belding & Mull or Parker, and Winchester Crystal Cleaner on a patch. Before using the solution, it would do no harm to scrub the bore with a brass brush. using complete strokes in both directions and with Hoppe's No. 9 on the brush, or some other cleaning solvent. Then push a clean patch through the bore and discard it to remove the loosened fouling. After this you can follow with Winchester Crystal Cleaner, using a patch on a proper jag-end cleaning rod, like the small tip on the Belding & Mull A-Type rod. Winchester Crystal Cleaner is an ammonia swabbing solution, and it will attack brass, so that you cannot use it with a brass brush, and it will probably injure a brass rod.

If you sight in for 150 yards, the bullet will go about an inch high at 100 yards. will go 5 inches low at 200 yards and 27 inches low at 300 yards.

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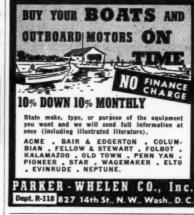
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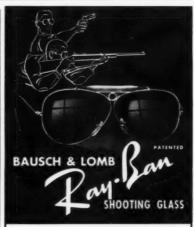
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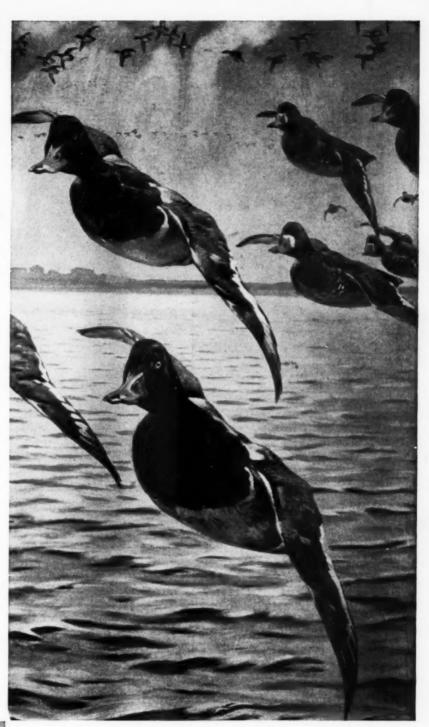
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